

SIKKIM UNIVERSITY

(A Central University Established by an Act of Parliament of India, 2007)

LEARNING OUTCOME - BASED CURRICULUM

MASTER OF ARTS IN ECONOMICS

(With effect from Academic Session 2023-24)



DEPARTMENT OF ECONOMICS

SIKKIM UNIVERSITY

6TH MILE, TADONG - 737102

GANGTOK, SIKKIM, INDIA

VICE-CHANCELLOR'S MESSAGE

Sikkim University stands at the forefront of embracing the transformative National Education Policy (NEP) 2020. In alignment with NEP 2020's vision and the guidelines of the Learning Outcomes-based Curriculum Framework (LOCF) mandated by the UGC, we have undertaken a comprehensive revision of our curriculum across all departments. This initiative ensures a holistic educational experience that transcends traditional knowledge delivery, emphasizing the practical application of knowledge in real-world scenarios. The shift towards LOCF marks a pivotal change from teacher-centric to learner-centric education, fostering a more active and participatory approach to learning. Our updated curriculum clearly defines Graduate Attributes, Programme Learning Outcomes (PLOs), and Course Learning Outcomes (CLOs), setting clear objectives for our students to achieve. This revision is designed to enable a teaching-learning environment that supports the attainment of these outcomes, with integrated assessment methods to monitor and encourage student progress comprehensively.

A key innovation in our curriculum is the mandatory integration of Massive Open Online Courses (MOOCs) through the SWAYAM platform, enhancing accessibility and the breadth of learning opportunities for students. Our approach encourages multidisciplinary studies through the curriculum while allowing for specialization. The curriculum embodies the policy's core principle of flexibility by enabling mobility for students, thereby allowing the exit and entry of students in the program.

I extend my heartfelt gratitude to our faculty, the Head of the Department, the Curriculum Development Committee members, the NEP coordinators, and the dedicated NEP Committee of Sikkim University for their relentless dedication to updating our curriculum. I appreciate Prof. Yodida Bhutia, the Chairperson, and all dedicated NEP Committee members for their thorough review and integration of LOCF and NEP components into our curriculum.

To our students, I convey my best wishes as we embark on this journey with our updated and inclusive curriculum, aiming not only to enrich their academic knowledge but also to nurture their personal growth, critical thinking, and ability to adapt and innovate in an ever-changing world.

Best wishes,



Prof. Avinash Khare
Vice Chancellor
Sikkim University

PREAMBLE

The Master of Arts (M.A.) in Economics, a two-year full-time programme, offered by the Department of Economics, Sikkim University, is a rigorous basis for much of the advanced thinking in the Economics discipline. It provides the students with a logical paradigm for conceptualising and interpreting the behaviour and interactions of households, firms, industry, institutions and experts of other countries. The curriculum allows students to choose elective courses from a set of courses with contemporary relevance, thereby offering students the flexibility to prepare for career in academia, management, government, and many other fields. The programme is consistent with global standards in the Economics discipline. It offers training that is comparable to that of a post graduate student across the world's best universities. It aims at providing the learners a wider and more comprehensive understanding of Economics as a field of knowledge.

About the Department of Economics

Department of Economics came into existence in the first academic session of Sikkim University 2010. The Department aims to provide an in-depth study of the theoretical propositions advocated by different schools of economics. The department offers M A and PhD in Economics. The important areas of research are Macroeconomics, Financial Economics, Informal Sector, Economics of Microfinance, Public Finance, Efficiency and Productivity Analysis, Poverty and Inequality, International Economics, Experimental Economics, Environmental Economics, Industrial Economics, Agriculture Economics, Labour Economics and Development Economics. The department also offers General Elective courses open to all postgraduate students of the university at par with National Educational Policy and Choice Based Credit System.

POSTGRADUATE STUDENTS ATTRIBUTES

PGA1: Disciplinary Knowledge and Understanding: Comprehensive knowledge and coherent understanding of Economics as a discipline and its inter-relationship with other disciplines e.g, Environmental Science, Computer application, Data sciences, Mathematics, Statistics, History, Sociology, law and others. Understand the current and emerging developments in the field of Economics. Procedural knowledge required for conducting research in Economics and related fields.

PGA2: Critical Thinking and Problem Solving: Capability to critically analyze and evaluate policies, theories, practices and issues related to education by following scientific approaches to knowledge development. Capacity to extrapolate one's learning and competencies in real life situation.

PGA3: Research Related Skills: Curiosity for new knowledge, capability for inquiry, identifying problems, formulate hypothesis, test hypothesis, analyze, interpret and draw conclusions. Ability to plan execute and report the results of research study abiding by the principles of research ethics.

PGA4: Communication Skills: Listen carefully, read texts and research papers analytically and express thoughts and ideas effectively in written and oral form.

PGA5: Digital Literacy and Skills: Capability to use ICT in variety of learning and work situations and to use appropriate softwares for creating content and research work. Develop, design and deliver courses using appropriate digital resources.

PGA6: Teamwork and leadership Quality: Ability to work effectively and respectfully as an individual and as a leader in diverse groups.

PGA7: Multicultural Competence: Ability to demonstrate the knowledge, values and beliefs of multiple cultures and effectively engage in a multicultural society by respecting diversity.

PGA8: Value inculcation: Ability to imbibe and practice constitutional, humanistic, ethical, and moral values, practice responsible global citizenship. Adopt appropriate behaviour and participate in actions for environmental conservation, protection and sustainable development.

PROGRAMME LEARNING OUTCOMES

The programme Learning Outcomes for post graduate programme in education are as follows:

PLO1: Demonstrate advanced knowledge and deeper understanding of Economics and applied field of Economics.

PLO2: Demonstrate advanced knowledge and understanding of the research in Economics and applied Economics area.

PLO3: Demonstrate cognitive and technical skills required for conducting relevant research that contribute to the generation of new knowledge.

PLO4: Apply the acquired advanced theoretical and/or technical knowledge about a specialized field of Economics and a range of cognitive and practical skills to identify and analyse problems

PLO5: Define research problems, formulate appropriate research questions, design sampling frame and sample size, formulate hypotheses, test hypotheses by using appropriate statistical tools and techniques and report following the research ethics.

PLO6: Make judgements and take decisions regarding the adoption of approaches to solving problems, including real-life problems, and take accountability for personal and/ or group actions to generate solutions to specific problems associated with education.

PLO7: Acquisition of knowledge and essential employability skills set required to adapt to the future of work and responding to the demands of the fast pace of technological developments and innovations.

PLO8: Critically evaluate and apply the theories and techniques of economics.

PLO9: Demonstrate subject-specific 'thinking' skills that are readily transferable to problem solving and Decision making in a wider context. Enhance their lifelong learning, employing a range of practical and professional skills

PLO10: Find, evaluate, synthesize and use information from a variety of sources.

PLO11: Articulate an awareness of the social and community contexts within their disciplinary field.

PLO12: Honor diversity and engage effectively in multicultural society with the core essence of global citizenship.

CURRICULUM STRUCTURE

Code	Papers	Core/Value Added/Open /Elective/Skill Enhancement Course/Dissertation	Credits (L+T+P)	Marks
Semester I				
ECO-C-501	Microeconomics I	C	4 = 3+1+0	100
ECO-C-502	Macroeconomics I	C	4 = 3+1+0	100
ECO-C-503	Introduction to Statistics	C	4 = 3+1+0	100
ECO-C-504	Mathematical Economics	C	4 = 3+1+0	100
ECO-V-505	Cyber Security	V	4 = 3+1+0	100
Semester II				
ECO-C-551	Microeconomics II	C	4 = 3+1+0	100
ECO-C-552	Macroeconomics II	C	4 = 3+1+0	100
ECO-C-553	Basic Econometrics	C	4 = 3+1+0	100
ECO-C-554	Foundations in Research Methods and Data Analysis	C	4 = 2+1+1	100
ECO-S-555	Economic Analysis Using Excel Solver	S	4 = 1+1+2	100
Semester III				
ECO-C-601	International Trade and Finance	C	4 = 3+1+0	100
ECO-S-602	Econometric Analysis Using Softwares	S	4 = 1+1+2	100
Open (Choose any one from 603 to 604)				
ECO-O-603	Indian Economy	O	4 = 3+1+0	100
ECO-O-604	Globalization and Development	O	4 = 3+1+0	100
Electives (Choose any two from 605 to 611)				
ECO-E-605	Advanced Econometrics	E	4 = 3+1+0	100
ECO-E-606	Industrial Economics	E	4 = 3+1+0	100
ECO-E-607	Public Finance	E	4 = 3+1+0	100
ECO-E-608	Financial Economics	E	4 = 3+1+0	100

ECO-E-609	Structure and growth of Indian Industries	E	4 = 3+1+0	100
ECO-E-610	History of Economic Thought	E	4 = 3+1+0	100
ECO-E-611	Economics of Social Sector	E	4 = 3+1+0	100
Semester IV				
ECO-R-651	Dissertation	R	8 = 0+2+6	200
ECO-V-652	Contribution of Economists to Indian Knowledge system	V	4 = 2+1+1	100
Open (Choose any one from 653 to 654)				
ECO-O-653	Agricultural Economics	O	4 = 2+1+1	100
ECO-O-654	Economics of Growth and Development	O	4 = 3+1+0	100
Electives (Choose any one from 655 to 661)				
ECO-E-655	Environmental Economics	E	4 = 3+1+0	100
ECO-E-656	Time Series Analysis	E	4 = 3+1+0	100
ECO-E-657	Economics of Informal Sector	E	4 = 3+1+0	100
ECO-E-658	Efficiency and Productivity Analysis	E	4 = 3+1+0	100
ECO-E-659	Concept of Poverty and Inequality	E	4 = 3+1+0	100
ECO-E-660	Empirics In Trade and Environment	E	4 = 1+2+1	100
ECO-E-661	Computer Applications in Economics	E	4 = 2+1+1	100
Total			84	

Note: C, V, O, E, S and R stand for Core courses, Value Added Courses, Open Courses, Elective Courses, Skill Enhancement Courses and Dissertation, respectively. Open courses can be opted by the students from other departments as well under the CBCS of UGC. Elective courses offered in relevant semesters may vary from year to year. In third and fourth semesters, students are required to opt at least two and one elective courses, respectively. In place of electives, students may also opt courses from SWAYAM platform. However, courses opted through SWAYAM should not exceed 40% of the total courses offered in the programme.

ECO-C-501**MICROECONOMICS I****Semester: First Semester****Course Level: 500****Total Marks: 100****L+T+P: 3+1+0=4 Credits****Lecture: 45 Hrs+ Tutorial:15 Hrs+ Practical: 0Hrs****COURSE LEARNING OUTCOMES:**

On completion of the course, the students will be able to:

CLO1: retrieve, recognize and recall relevant knowledge for long term memory. For example, the students can identify different types of utility functions, preference curves, production functions and cost functions, the theorems and important concepts like Weak Axioms of Revealed preferences, utility maximization, cost minimization etc.

CLO2: categorize, clarify, classify, compare, contrast and conclude about the meanings from oral, theoretical, graphical, and algebraic expressions.

CLO3: to integrate all the concepts and apply them in the real business decision making analysis and in real economic problems that the society is facing.

CLO4: to analyze the interrelationship among various concepts, and will be able to understand the relative contribution of each concept in economic planning and in decision making problems.

CLO5: formulate innovative ideas in describing, comparing, expanding the existing concepts with new information and will be able to implement them through new procedures or through modifying the existing procedure.

CLO6: evaluate each and every term in terms of its use, its predictive power, its relevance in applying various economic methods

COURSE OUTLINE**UNIT I: THEORY OF CONSUMER BEHAVIOR:**

Axiomatic Analysis of Preference Relations; Utility Function and Preference Relation and Indifference Curve; Consumer's Equilibrium under Certainty; Duality in Utility Maximization and Expenditure Minimization; Price Effect, Income and Substitution Effect, and Slutsky Equation; Comparative Statics; Choice and Revealed Preference Theory; Decision Making under Uncertainty.

UNIT II: THEORY OF NEOCLASSICAL FIRM

Production Technology and Production Function; Economics of Short Run and Long Run Production; Theory of Cost of Production functions; Conditional input demand function; Short Run and Long Run Cost Functions; Duality in Production and Cost function; Competitive Firm's Profit

Maximization; Profit Function, Supply and Input Demand Function; Short run profit function.

UNIT III: MARKET STRUCTURE

Perfect Competitive Market; Short Run and Long Run Equilibrium in Competitive Market; Imperfect Competition; Pure Monopoly and Profit Maximizing Output; Discriminating Monopoly and Durable Good Monopoly; Strategic Behavior of Firms in Imperfect Markets; Bertrand, Stackleberg, and Cournot Model; and Monopolistic Competition.

UNIT IV: DECISION MAKING UNDER MARKET IMPERFECTION

Equilibrium and Welfare; Market Failure; Price and Individual Welfare; Efficiency of Competitive Outcome, and its application; Market Failure Under Adverse Selection, Signaling Models, Screening Model; Game Theory, Strategic Decision Making.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum discussion, Class room reading, Narration, PowerPoint presentations, Clarification interaction, Web streaming, Video lessons, Library readings
- Newspaper discussion on economic affairs
- Computer-based numerical analysis
- Journal papers critical review
- Assignments, Term papers, and presentations

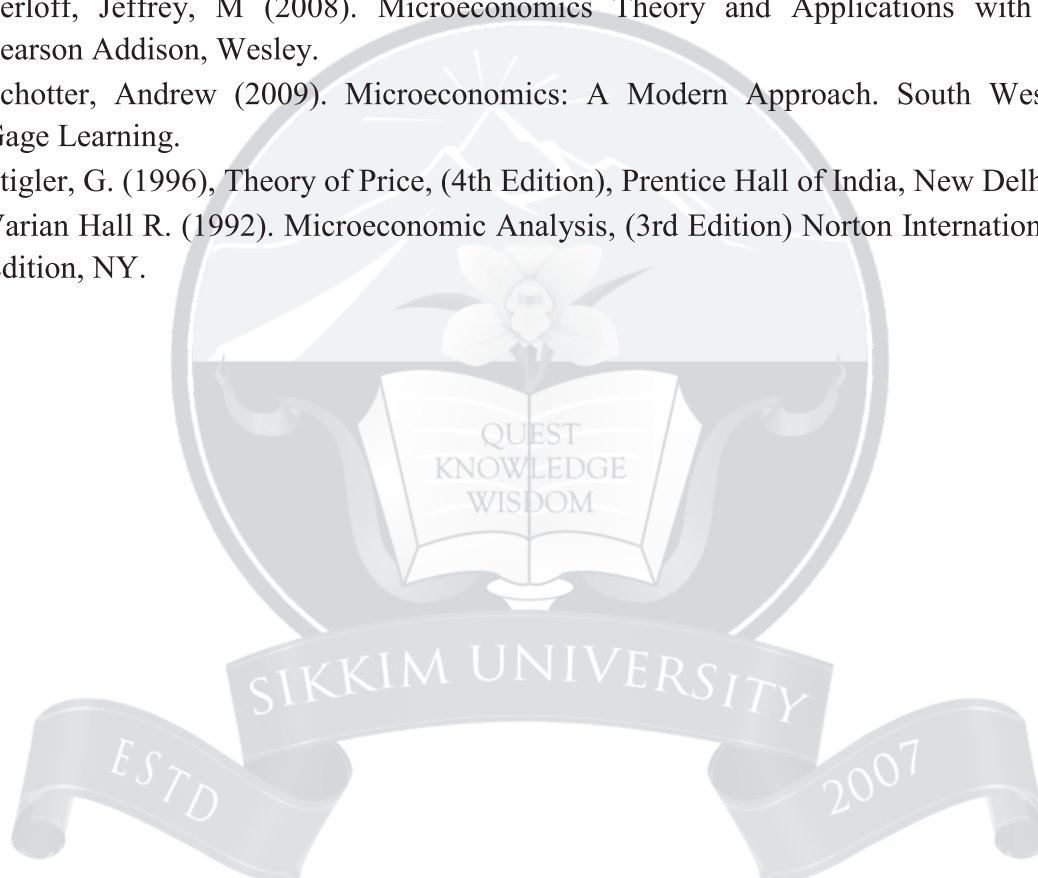
ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, MCQ framing test, Online Test, Objective Test, Class Assignment, Exercise Classes, Home Assignment, Critical review of papers	Oral Test, Viva-Voce, Group Discussion, Debates, Newspaper discussion, Quiz, Seminar	Presentations, Seminars, Numerical data analysis, Current economic Affairs PPT presentation
Summative Assessment (50 Marks)	Summative assessment will be based on the semester-end examinations conducted by the university.		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS

- Baumol, William, J (1960) Economic Theory and Operation Analysis, Prentice Hall Private Limited, New Delhi
- Friedman, Milton (2008) Price Theory, Babylon Publishing, USA.
- Jehle G. and Reny P. (2004). *Advanced Microeconomic Theory*, (3rd Edition) Prentice Hall, UK.
- Henderson, J.M., and Quant, Richard, E (1958) Microeconomic Theory: A Mathematical Approach, McGraw Hill Company, NY.
- Mas Colell, Andreu., Whinston., Michael. D., and Green, Jerry. R. (1995). *Microeconomic Theory*, OUP.
- Mohapatra, R. (2021). Microeconomics-I: An Intuitive Analysis, Manakin Press, New Delhi.
- Perloff, Jeffrey, M (2008). Microeconomics Theory and Applications with Calculus, Pearson Addison, Wesley.
- Schotter, Andrew (2009). Microeconomics: A Modern Approach. South Western, Cen Gage Learning.
- Stigler, G. (1996), Theory of Price, (4th Edition), Prentice Hall of India, New Delhi.
- Varian Hall R. (1992). Microeconomic Analysis, (3rd Edition) Norton International Student Edition, NY.



**ECO-C-502
MACROECONOMICS I**

Semester: First Semester
L+T+P: 3+1+0=4 Credits

Course Level: 500
Lecture: 45 Hrs + Tutorial: 15 Hrs + Practical: 0 Hrs

Total Marks: 100

COURSE LEARNING OUTCOMES (CLOS):

On completion of the course, the students will be able to:

- CLO1:** To familiarise students with the procedure for estimating national income and product.
- CLO2:** To make students understand real-world market behaviours, prices, and inflation through demand and supply processes.
- CLO3:** To make students understand how banks work and how the money supply changes in an economy and managing balance of trade/payment.
- CLO4:** To make students understand how the economy works in terms of production, consumption, and distribution in different economic systems like market economy, mixed and socialist economic system.

COURSE OUTLINE

UNIT I: NATIONAL INCOME AND CONSUMPTION FUNCTION

National Income Accounting and Consumption Function: Circular Flow of Income— in one, two, three and four sector model; Different forms of National Income Accounting— GDP, GNP, NDP, NNP, etc.; Social Accounting; Consumption Function— Keynes' Psychological Law of Consumption; Kuznets's Consumption Puzzle; Absolute Income Hypothesis; Friedman's Permanent Income Hypothesis; Duesenberry's Relative Income Hypothesis; Ando-Modigliani's Life-cycle hypothesis; The Random Walk Hypothesis.

UNIT II: MONEY SUPPLY, IS-LM MODEL

Theories of Supply of Money: Definition of supply of Money and its importance in Macroeconomics; Determinants of Money supply; High-powered Money; Money Multiplier and Credit Creation by Commercial Banks; Factors affecting the Money Multiplier; IS-LM model— derivation, property and shift of the curve; Effects of Monetary and Fiscal policies on IS-LM curve.

UNIT III: DEMAND FOR MONEY, PORTFOLIO MANAGEMENT OF THE WEALTH

Theories of Demand for Money: Fisher's Quantity Theory of Money; Keynes Motives for Liquidity preference—Transactions, Precautionary, Speculative; William Baumol's Inventory Theoretic Approach; James Tobin's Liquidity Preference as Behaviour Towards Risk; Friedman's Restatement of Quantity Theory of Money.

UNIT IV: INVESTMENT, MEC AND PV

Investment Function: Tobin's Q Theory of Investment; Keynesian Approach of Marginal Efficiency of Capital and Investment– long run and short run; the Accelerator and Investment Behavior– Influence of Policy Measures on Investment; Present Value Investment Criteria; Jorgenson's Neo-classical Theory of Investment.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum-discussion, Class room reading, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings
- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Fishbowl, Brainstorming
- Computer-based learning, Spreadsheets and Databases, Hands-on data analysis
- Essays, Assignments, Term papers, End semester exam, Case studies, Group projects, Panel discussions, Seminar presentations

ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, Online Test, Class Assignment, Home Assignment, Dissertation, Book Review	Oral Test, Viva- Voce, Discussion, Seminar	Presentation, Group Seminars, Field Assignments, Poster Presentations
Summative Assessment (50 Marks)	Semester-end examinations conducted by the university will be considered the mode of summative assessment		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Ackley, Gardner (1978). Macroeconomics– Theory and Policy, New York: Macmillan.
- Andolfatto, D. (2005). Macroeconomics— Theory and Policy Preliminary Draft, Simon Fraser University.
- Branson, W. H. (2005). Macroeconomics Theory and Policy, New York: Harper and Row.
- Chamberlin, G. & Yueh, L. (2006). Macroeconomics, New York: Thomson.
- Dornbusch, R. and F. Stanley (2011). Macroeconomics, New York: McGraw Hill, Inc.
- Edgmand, M. R. (1987). Macroeconomics– Theory and Policy, New Delhi: Prentice Hall.
- Gregory Mankiw, N. (2012). Macroeconomics, New York: Macmillan.
- Shapiro, E. (2010). Macro-Economic Analysis, New Delhi: Galgotia Publications (P) Ltd.
- Gupta, S. B. (2016). Monetary Economics- Institutions, Theory and Policy, Delhi: S. Chand.
- Fama, Eugene F (1965). Random Walks in Security Prices, Financial Analysts Journal, 41: 55-5

Note: Latest edition of text books and reference books may be used.

ECO-C-503

INTRODUCTION TO STATISTICS

Semester: First Semester
L+T+P: 3+1+0=4 Credits

Course Level: 500
Lecture: 45 Hrs+ Tutorial: 15 Hrs+ Practical: 0 Hrs

Total Marks: 100

Course Learning Outcomes:

On completion of the course, the students will be able to:

CLO1: describe and verbalize the basic concepts and measures of descriptive and inferential statistics

CLO2: comprehend and explain the various statistical methods and their practical use in the real world

CLO3: illustrate different measurement issues particularly with respect to the nature of the data and sampling techniques

CLO4: demonstrate systematic organization of data and examine the trends and patterns

CLO5: exhibit expertise on data analysis using statistical softwares such as STATA and SPSS, and derive meaningful results, relevant for policymaking

CLO6: critically gauge and validate the strengths and weaknesses of the applied statistical methods in relation to concrete economic issues

CLO7: formulate research hypotheses on specific economic issues and identify relevant statistical methods to address them

COURSE OUTLINE**UNIT I: DESCRIPTIVE STATISTICS**

Collection, organization and presentation of data; Measures of central tendency and dispersion; Measures of association— Correlation, Concept of least squares and lines of regression.

UNIT II: THEORY OF PROBABILITY AND DISTRIBUTION

Basic probability— Sample space, events, classical and axiomatic definitions of probability, independence, conditional and marginal probability, Bayes' formula, random variables, distribution function, variance and other moments.

UNIT III: DISTRIBUTION THEORY

Discrete random variables— binomial, geometric and Poisson; Continuous random variables— uniform, normal, exponential, logistic, bivariate normal, t, F, and chi-square; Inequalities and limit results— Chebyshev's inequality, weak law of large numbers and central limit theorem.

UNIT IV: STATISTICAL INFERENCE

Estimation— Basic concepts, parameter, statistic, estimate, sampling distribution, properties of estimators, Cramer Rao inequality, point and interval estimators; *Point estimation*— method of moments, maximum likelihood method; *Interval estimation*— level of confidence, confidence limits and critical region; *Hypothesis Testing*— Type I and II errors, level, size, p-value, power; Testing hypothesis about mean and variance of normal population.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum discussion, Class room reading, PowerPoint presentations, Clarification pauses and collaborative note-taking, Video lessons, Library readings
- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Fishbowl, Brainstorming
- Computer-based learning, Spreadsheets and Databases, Hands-on data analysis, Data visualisation
- Project-Based Learning, Surveys
- Essays, Assignments, Term papers, Group projects, Seminar presentations

ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment Marks)	Class Test, Open Book Test, Self-Test, Online Test, Objective Test, Class Assignment, Peer assessment, Exercise Classes, Home Assignment	Oral Test, Viva-Voce, Hot seat, Brainstorming, Student becomes teacher, Group Discussion, Debates, Quiz	Presentations, Seminars, Hands-on Data Analysis
Summative Assessment Marks)	Summative assessment will be based on the semester-end examinations conducted by the university.		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- DeGroot, M. H. (1975), *Probability and Statistics*, Addison Wesley.
- Freedman, D., R. Pisani and R. Purves (1998), *Statistics*, Norton and Co.
- Hogg and Tanis (1989), *Probability and Statistical Inference* Maxwell Macmillan.
- Chung, K.L. (1979), *Introductory Probability Theory* Springer-Verlag.
- Freund, J. (1992), *Mathematical Statistics*, Prentice Hall.
- Gnedenko, B. (1969), *The Theory of Probability*, Mir.
- Hoel, P. and E. Stone (1971), *Introduction to Probability Theory*, Universal Book Stall.
- Nagar, A.L. and R.K. Das (1983), *Basic Statistics* Oxford University Press.
- Rao, C.R. (1965), *Linear Statistical Inference and Applications*, Wiley and Sons.

ECO-C-504
MATHEMATICAL ECONOMICS

Semester: First Semester
L+T+P: 3+1+0=4 Credits

Course Level: 500
Lecture: 30 Hrs+ Tutorial: 15 Hrs+ Practical: 0 Hrs

Total Marks: 100

Course Learning Outcomes:

On completion of the course, the students will be able to:

CLO1: express relationship between economic variables mathematically, analyze, optimize, and interpret them.

CLO2: identify variables and parameters in real life situations.

CLO3: use appropriate techniques to solve problems with calculus and linear algebra.

CLO4: understand the basics of Game theory to resolve economic issues.

CLO5: expertise to solve the problems through a wide array of mathematical techniques

COURSE OUTLINE

UNIT I: LINEAR ALGEBRA AND MATRICES

Vector space, linear dependence, algebra of matrices— addition, multiplication, transpose, inverse; Orthogonal, symmetric, idempotent and positive definite matrices; Eigenvalues, eigenvectors and quadratic forms; Simultaneous equations with matrices; Introduction to Input-output analysis.

UNIT II: REAL ANALYSIS

Set theory, introduction to real number system, compactness and convergence; Functions of one and several variables—algebraic, exponential and logarithmic functions; Continuity at a point and over an interval; Differentiability; Limits of functions.

UNIT III: DIFFERENTIAL CALCULUS

Rules of differentiation; Derivatives of implicit functions, partial derivatives; Constrained and unconstrained optimization techniques, with special emphasis on application to problems from economics; indefinite integral of algebraic, exponential and logarithmic functions; Define integrals; Introduction to methods in control theory.

UNIT IV: DIFFERENCE AND DIFFERENTIAL EQUATIONS

Linear difference and differential equations; Second order differential equations, with emphasis on examples from economics.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum discussion, Class room reading, Narration, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings

- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Fishbowl, Brainstorming
- Computer-based learning, Spreadsheets and Databases, Hands-on data analysis
- Case-Based Learning, Field visits, Surveys
- Essays, Assignments, Term papers, Case studies, Group projects, Panel discussions, Seminar presentations

ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, Online Test, Objective Test, Class Assignment, Exercise Classes, Home Assignment	Oral Test, Viva-Voce, Group Discussion, Seminar	Presentations, Seminars, Fields Assignments, Hands-on Data Analysis
Summative Assessment (50 Marks)	Summative assessment will be based on the semester-end examinations conducted by the university.		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Allen, R.G.D. (1976). *Mathematical Analysis for Economists*, Macmillan.
- Chiang, A.C. (1974). *Fundamental Methods of Mathematical Economics*, McGraw Hill and Kogakusha, New Delhi.
- Hadley, G. (1987). *Linear Algebra*. Narosa Publishing House.
- Handry, A.T. (2016): *Operation Research: An Introduction*, Prentice Hall.
- Simon, C.P. and Blume, L. (1994). *Mathematics for Economists*. W. W. Norton and Company.
- Smith. A.H. and Albrecht, W.A. (1966). *Fundamental Concepts of Analysis*. Prentice Hall of India.
- Solow, Robert M.; Dorfman, Robert; Samuelson, Paul (1958). *Linear Programming and Economic Analysis*. New York: McGraw-Hill
- Sundaram R.K. (1966) *A First Course in Optimization Theory*. Cambridge University Press.
- Sydsaeter, K., and P.J. Hammond (2012): *Mathematics for Economic Analysis*, Pearson
- Tarski, A. (1965). *Introduction to logic and to the methodology of deductive science*, Oxford University Press.

**ECO-V-505
CYBER SECURITY****Semester: First Semester**
L+T+P: 3+1+0=4 Credits**Course Level: 500**
Lecture: 45 Hrs + Tutorial: 15 Hrs + Practical: 0 Hrs**Total Marks: 100****Course Learning Outcomes (CLOs):**

CLO1: Students after completing this will be able to understand the basic terminologies related to cyber security and current cyber security threat landscape.

CLO2: They will also develop understanding about Cyberwarfare and the necessity to strengthen the cyber security of end user machines, critical IT and national critical infrastructure.

CLO3: After completion of the course, students will have complete understanding of the cyber-attacks that target computers, mobiles and persons. They will also develop understanding about the type and nature of cybercrimes and as to how to report these crimes through the prescribed legal and Government channels.

CLO4: Students will understand the main components of a cyber-security plan.

COURSE OUTLINE**UNIT I: OVERVIEW OF CYBER SECURITY**

Cyber security terminologies- Cyberspace, attack, threat, risk, vulnerability, exploitation, hacker., Non-state actors, Cyber terrorism, Critical IT and National Critical Infrastructure, Cyberwarfare, Case Studies.

UNIT II: CYBER CRIMES

Cybercrimes targeting Computer systems and Mobiles- data diddling attacks, spyware, virus, Trojans, ransom ware, data breach., Online scams and frauds- email scams, Phishing, Online job fraud, Online sextortion, Debit/ credit card fraud, Online payment fraud, Cyberbullying, illegal trades, drug trafficking, human trafficking., Social Media Scams & Frauds- impersonation, identity theft, job scams, misinformation, fake news cybercrime against persons - cyber grooming, child pornography, cyber stalking, Social Engineering attacks, Cyber Police stations, Crime reporting procedure, Case studies.

UNIT III: CYBER LAWS

Cybercrime and legal landscape around the world, IT Act 2000 and its amendments. Limitations of IT Act, 2000. Cybercrime and punishments, Cyber Laws and Legal and ethical aspects related to

new technologies- AI/ML, IoT, Blockchain, Darknet and Social media, Cyber Laws of other countries, Case Studies.

UNIT IV: DATA PROTECTION

Defining data, meta-data, non- personal data. Data protection, Data privacy and data security, Personal Data Protection Bill and its compliance, Data protection principles, Big data security issues and challenges, Data protection regulations of other countries- General Data Protection Regulations(GDPR),2016 Personal Information Protection and Electronic Documents Act (PIPEDA). Social media- data privacy and security issues. National cyber security policy and strategy.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum-discussion, Class room reading, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings
- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Fishbowl, Brainstorming
- Case-Based Learning, Field visits, Surveys
- Essays, Assignments, Term papers, End semester exam, Case studies, Group projects, Panel discussions, Seminar presentations

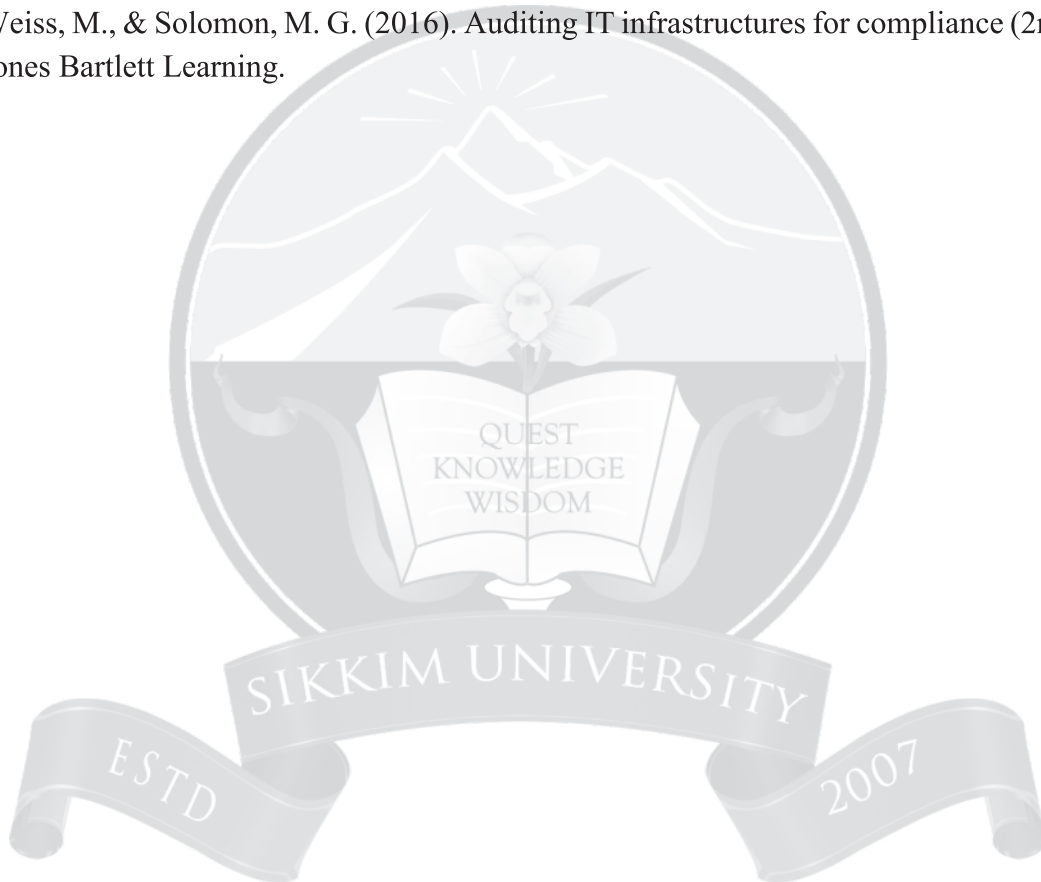
ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, Online Test, Class Assignment, Home Assignment, Dissertation, Book Review	Oral Test, Viva-Voce, Group Discussion, Seminar	Presentation, Seminars, Field Assignments, Poster Presentations
Summative Assessment (50 Marks)	Semester-end examinations conducted by the university will be considered the mode of summative assessment		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Belapure, S., & Godbole, N. (2011). *Cyber security: Understanding cybercrimes, computer forensics and legal perspectives*. Wiley India Pvt. Ltd.
- Denning, D. F. (1998). *Information warfare and security*. Addison Wesley.
- KragBrothy, W. (2008). *Information security governance: Guidance for information security managers* (1st Ed.). Wiley.
- Oliver, H. A. (2015). *Security in the digital age: Social media security threats and vulnerabilities*. Create Space Independent Publishing Platform.
- Venkataramanan, N., & Shriram, A. (2017). *Data privacy principles and practice*. CRC Press.
- Weiss, M., & Solomon, M. G. (2016). *Auditing IT infrastructures for compliance* (2nd Ed.). Jones Bartlett Learning.



ECO-C-551**MICROECONOMICS II**

Semester: Second Semester
L+T+P: 3+1+0=4 Credits

Course Level: 500
Lecture: 45 Hrs + Tutorial: 15 Hrs + Practical 0 Hrs

Total Marks: 100

Course Learning Outcomes:

After completion of the course, the students will be able to

CLO1: retrieve, recognize and recall relevant knowledge for long term memory. For example, the students can identify different types of utility functions and production functions used to analyze and evaluate the efficiency and equity in the resource allocation in the context of Walrasian General equilibrium framework.

CLO2: categorize, clarify, classify, compare, contrast and conclude about the meanings of various concepts such as pareto set, pareto optimality, equilibrium allocation from oral, theoretical, graphical, and algebraic expressions.

CLO3: integrate all the concepts and apply them in the analyzing the outcome of general equilibrium among different sectors of the economy; its implication on each market, and on the welfare of the economy.

CLO4: analyze the interrelationship among various concepts, and will be able to understand the relative contribution of each concept in economic planning and in decision making problems.

CLO5: formulate innovative ideas in describing, comparing, expanding the existing concepts with new information and will be able to implement them through new procedures or through modifying the existing procedure.

CLO6: evaluate each and every term in terms of its use, its predictive power, its relevance in applying various economic methods

CLO7: making overall judgement.

COURSE OUTLINE**UNIT I: THE PURE EXCHANGE MODEL**

The Problem of Pure exchange and Solutions: Walras and Edgeworth; Competitive Equilibrium; Core and the Equivalence Theorem; Effect of Endowment Changes.

UNIT II: GENERAL EQUILIBRIUM AND PRODUCTION MODEL

Structure of Simple General Equilibrium Production Models; General Activity Analysis Models of Production; Linear Models: Non-Substitution Theorem; Supply Functions

UNIT III: GENERAL EQUILIBRIUM

Walrasian Equilibria: Existence and Uniqueness; The Need for Supporting Regulatory Mechanisms; Stability: The Need for Appropriate Distribution of purchasing power and resources; Efficiency Properties of Walrasian Equilibria; Non Walrasian Equilibria: Non Tatonnement Processes; and Rationing Equilibria

UNIT IV: WELFARE ECONOMICS

Fundamental Theorems of Welfare Economics; Social Welfare Functions and Arrow's Impossibility Theorem; Externalities and Public Goods. Market Failures and, Second best Problems

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum discussion, Class room reading, Narration, PowerPoint presentations, Clarification interaction, Web streaming, Video lessons, Library readings
- Newspaper discussion on economic affairs
- Computer-based numerical analysis
- Journal papers critical review
- Assignments, Term papers, and presentations

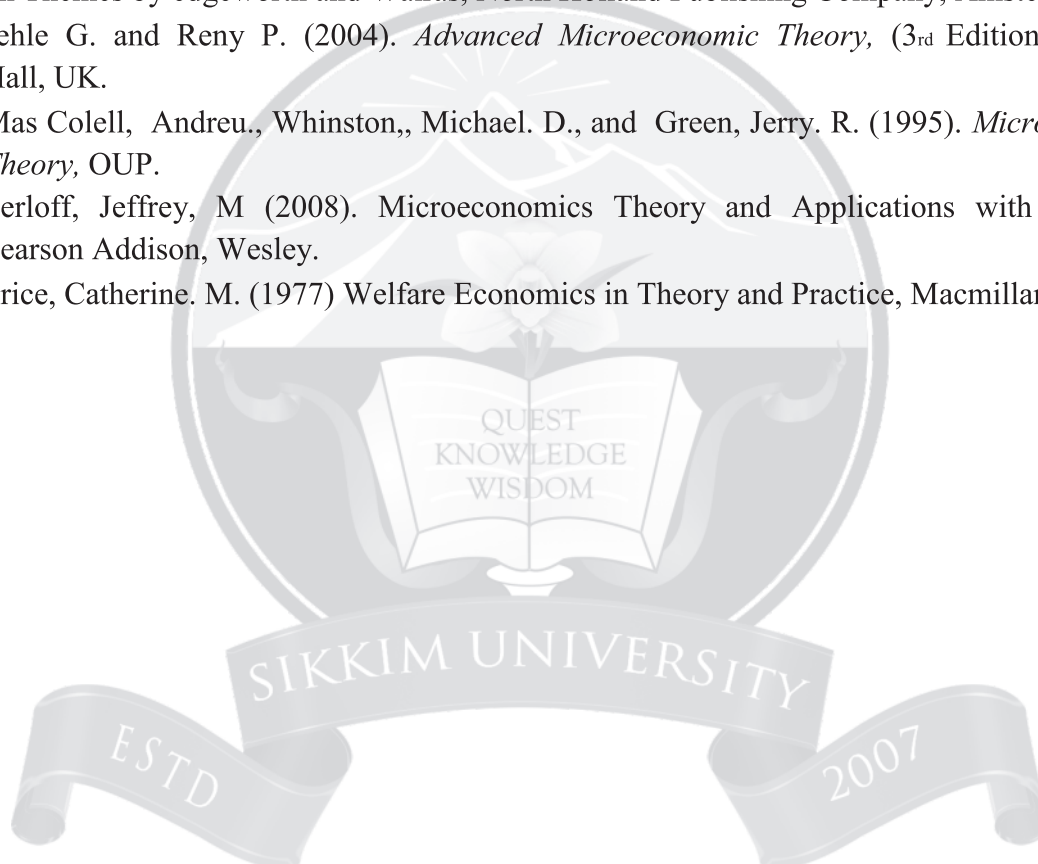
ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment Marks)	Class Test, MCQ framing test, Online Test, Objective Test, Class Assignment, Exercise Classes	Oral Test, Viva-Voce, Group Discussion, Debates, Seminar	Presentations, Seminars, Numerical data analysis, Current economic Affairs PPT presentation
Summative Assessment Marks)	Summative assessment will be based on the semester-end examinations conducted by the university.		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Black, Fisher (1995) Exploring General Equilibrium, MIT press, Cambridge, London.
- Cardenete, M.A., Guerra, A.I., and Sanch Ferran (2012) Applied General Equilibrium: An Introduction, Springer, London.
- Daal V.V. and Jolink A. (1993) The Equilibrium Economics of Leon Walras, Routledge, London
- Feldman, Allan. M. (1943) Welfare Economics and Social Choice Theory, Kluwer Academic Publisher, Netherland.
- Gilles, Robert.P.(1996) Economic Exchange and Social Organization: The Edgeworthian Foundations of General Equilibrium Theory, Kluwer Academic Publisher, Boston.
- Hildenbrand, W., and Kirman, A.P (1976) Introduction to Equilibrium Analysis: Variations on Themes by edgeworth and Walras, North Holland Publishing Company, Amsterdam.
- Jehle G. and Reny P. (2004). *Advanced Microeconomic Theory*, (3rd Edition) Prentice Hall, UK.
- Mas Colell, Andreu., Whinston., Michael. D., and Green, Jerry. R. (1995). *Microeconomic Theory*, OUP.
- Perloff, Jeffrey, M (2008). Microeconomics Theory and Applications with Calculus, Pearson Addison, Wesley.
- Price, Catherine. M. (1977) Welfare Economics in Theory and Practice, Macmillan Books



ECO-C-552
MACROECONOMICS II

Semester: Second Semester
L+T+P: 3+1+0=4 Credits

Course Level: 500
Lecture: 45 Hrs + Tutorial: 15 Hrs + Practical: 0 Hrs

Total Marks: 100

Course Learning Outcomes (CLOs):

On completion of the course, the students will be able to:

- CLO1:** To familiarise students with various economic systems such as Classical, Keynesian, and Neo-liberal models.
- CLO2:** To help students comprehend real-world market behaviour, pricing and inflation, income, wage and employment, and so on, in both long-run and short-run, closed and open-economy models.
- CLO3:** To make students understand how banks function and how the money supply changes in an economy especially in the digital world.
- CLO4:** To make students understand how the economy works in terms of production, consumption, and distribution in different economic systems like market economy, mixed and socialist economic system.

COURSE OUTLINE

UNIT I: THEORY OF INCOME AND EMPLOYMENT

A review of the Classical Approach and Keynesian reaction— income and employment determination including money and interest; Classical theory of wage, price and interest rate flexibility and assumption of full employment; Keynesian under employment equilibrium— wage, price and interest rate rigidity, Real and monetary sector, Interest rate policy; IS-LM Analysis— explaining the role of government fiscal and monetary policies.

UNIT II: IMPLICATION OF ALTERNATIVE EXCHANGE RATE REGIMES

Macroeconomic policy in an Open Economy— the Mundell-Flemming Model; Stabilization of the Open Economy; Rational expectations and rational expectations as efficient forecast; Disequilibrium in International Payment, Adjustment Mechanisms under various Exchange Rate Regimes, Devaluation and Exchange Control— The Monetarist Approach to the Balance of Payments.

UNIT III: INFLATION AND PHILLIPS CURVE

Classical, Keynesian and Monetarist approaches to inflation; Structuralist theory of inflation; Phillips curve— short run and long run, Okun's law, trade-off between inflation and unemployment; natural rate of unemployment; Adaptive and rational expectations; Policies to control inflation.

UNIT IV: BUSINESS CYCLES AND BALANCE OF PAYMENT

Concept of Trade/business cycle; Theories of Schumpeter, Kaldor, Hicks, Samuelson; Goodwin's model; Control of business cycles— relative efficacy of monetary and fiscal policies.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum-discussion, Class room reading, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings
- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Fishbowl, Brainstorming
- Case-Based Learning, Field visits, Surveys
- Essays, Assignments, Term papers, End semester exam, Case studies, Group projects, Panel discussions, Seminar presentations

ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, Online Test, Class Assignment, Home Assignment, Dissertation, Book Review	Oral Test, Viva- Voce, Group Discussion, Seminar	Presentation, Seminars, Field Assignments, Poster Presentations
Summative Assessment (50 Marks)	Semester-end examinations conducted by the university will be considered the mode of summative assessment		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS

- Ackley, Gardner (1978). Macroeconomics— Theory and Policy, New York: Macmillan.
- Andolfatto, D. (2005). Macroeconomics— Theory and Policy Preliminary Draft, Simon Fraser University.
- Branson, W. H. (2005). Macroeconomics Theory and Policy, New York: Harper and Row.
- Chamberlin, G. & Yueh, L. (2006). Macroeconomics, New York: Thomson.
- Dornbusch, R. and F. Stanley (2011). Macroeconomics, New York: McGraw Hill, Inc.
- Edgmand, M. R. (1987). Macroeconomics— Theory and Policy, New Delhi: Prentice Hall.
- Gregory Mankiw, N. (2012). Macroeconomics, New York: Macmillan.
- Shapiro, E. (2010). Macro-Economic Analysis, New Delhi: Galgotia Publications (P) Ltd.
- Gupta, S. B. (2016). Monetary Economics- Institutions, Theory and Policy, Delhi: S. Chand.
- Fama, Eugene F (1965). Random Walks in Security Prices, Financial Analysts Journal, 41: 55-5

Note: Latest edition of text books and reference books may be used.

ECO-C-553
BASIC ECONOMETRICS

Semester: Second Semester

Course Level: 500

Total Marks: 100

L+T+P: 3+1+0=4 Credits

Lecture: 45 Hrs+ Tutorial: 15 Hrs+ Practical: 0 Hrs

Course Learning Outcomes (CLOs):

On completion of the course, the students will be able to:

CLO1: have concise knowledge of basic regression analysis of economic data and identify the methods and models that can be utilised for specific problems

CLO2: understand the tools and techniques to be used for the estimation of various models relating various socio-economic variables and their practical use in different real life situations

CLO3: interpret and critically evaluate outcomes of empirical analysis

CLO4: know elementary procedures for model validation in the single equation context

CLO5: know the theoretical background for standard methods used in empirical analyses, like properties of least squares estimators and statistical testing of hypotheses

COURSE OUTLINE

UNIT I: THE CLASSICAL LINEAR REGRESSION MODEL (CLRM)

Ordinary Least Squares (OLS) —Estimation and Inference, simple and multiple regression models; Functional forms and structural change; Non-linear regression; Growth rates; Dummy variable regressors.

UNIT II: VIOLATION OF CLASSICAL ASSUMPTIONS

Violations of OLS assumptions; Misspecification tests; Heteroscedasticity and autocorrelation; Multicollinearity; Aitken theorem and generalised least squares (GLS) method; Restricted least squares estimator and testing procedures; Stochastic regressors— errors in variables and its consequences; Hypothesis testing under multiple parameter restrictions.

UNIT III: MAXIMUM LIKELIHOOD ESTIMATION (MLE)

Likelihood function, properties of MLE; The gradient and information matrix; Numerical Optimization Methods; The likelihood ratio, Wald, and Lagrange multiplier tests.

UNIT IV: SIMULTANEOUS EQUATIONS SYSTEM

Structural and reduced forms, least squares bias problem, Formalization of identification problem— rank and order conditions; Recursive Models – Methods of Estimation; 1LS, 2SLS, 3SLS; The method of instrumental variables – identification and choice of estimation method.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum discussion, Class room reading, Narration, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings
- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Fishbowl, Brainstorming
- Computer-based learning, Spreadsheets and Databases, Hands-on data analysis
- Case-Based Learning, Field visits, Surveys
- Essays, Assignments, Term papers, Case studies, Group projects, Panel discussions, Seminar presentations

ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, Online Test, Objective Test, Class Assignment, Exercise Classes Home Assignment	Oral Test, Viva-Voce, Group Discussion, Seminar	Presentations, Seminars, Fields Assignments, Hands-on Data Analysis
Summative Assessment (50 Marks)	Summative assessment will be based on the semester-end examinations conducted by the university.		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Baltagi, B.H. (1998). *Econometrics*, Springer, New York
- Dongherty, C. (1992). *Introduction to Econometrics*. Oxford University Press, New York
- Goldberger, A.S. (1998). *Introductory Econometrics*. Harvard University Press. Cambridge, Mass
- Gouriéroux C. A. Monfort. (2002). *Statistics and Econometric Models*. Cambridge University Press Vol. 1 and 2.
- Gujarati, D.N. and Sangeetha, (2007). *Basic Econometrics* (4th Edition), McGraw Hill, New Delhi
- Maddala, G.S. (1997). *Econometrics*. McGraw Hill, New York
- Maddala, G.S. (Ed.). (1993). *Econometrics Methods and Application*. Aldershot (2 Vols.).
- Madnani, G.M.M. (2008), *Introduction to Econometrics- Principles and Applications*. OUP.
- Pindyck, R.S. and Rubinfeld D.L. (1976). *Econometric Models and Economic Forecasts*. McGraw Hill Kogakusha, Tokyo
- Wooldridge, J.M. (2000). *Introductory Econometrics*. Southwestern

ECO-C-554**FOUNDATIONS IN RESEARCH METHODS AND DATA ANALYSIS****Semester: Second Semester****Course Level: 500****Total Marks: 100****L+T+P: 2+1+1=4 Credits****Lecture: 30 Hrs+ Tutorial: 15 Hrs+ Practical: 30 Hrs****Course Learning Outcomes:**

On completion of the course, the students will be able to:

CLO1: define and articulate the various steps in research process in economics

CLO2: critically review the relevant literature on the topic and identify the research gaps

CLO3: comprehend and illustrate different research designs and the aptness of each in addressing different types of research questions

CLO4: design and execute field and non-field-based studies to investigate relevant economic problems

CLO5: demonstrate and use computer software programs to analyze relevant economic problems using large databases and appropriate econometric tools, and derive and interpret the results

CLO6: apply and critically evaluate the main research methods that are typically applied in economics

CLO7: formulate a research project plan and research methodology

COURSE OUTLINE**UNIT I: INTRODUCTION TO RESEARCH IN SOCIAL SCIENCES**

Meaning and Significance of Social Science Research, Research in Science and Non-Science Disciplines; Approaches to Research— Descriptive vs Analytical, Qualitative vs Quantitative, Applied vs Fundamental, Conceptual vs Empirical; Research Process in Economics; Formulating the Research Problem, Survey of Literature, Critical Reading, Theorizing the Research, Formulation of hypotheses, The Research Design.

UNIT II: TYPES AND SOURCES OF DATA

Cross-Section, Time-Series, Panel and Pooled Cross-Section Data, Secondary Data Sources— Availability, Features and Methods of Data Collection, NSSO, CSO, ASI, RBI, MSME, WBES, Economic Survey, EPWRF, Population Census, Economic Census, Agricultural Census, Livestock Census, Other Databases (PROWESS and WITS) etc., Primary Data— Observation, Interview and Questionnaire/Schedule; Pilot Survey, Reliability and Validity

UNIT III: SAMPLING, SURVEY AND DATA COMPILATION

Population and Sample, Sample Size, Types of Sampling— Probability and Non-probability Sampling; Error Minimization, Evaluation of Time and Cost, Sample Weights, Choice of Sampling Design; Data Extraction (using MS Access and SPSS), Data Entry, Editing, Cleaning and Coding (using MS Excel), Classification and Tabulation (using MS Excel and SPSS).

UNIT IV: DATA ANALYSIS

Descriptive Statistics, Graphs, Correlation, Regression Analysis— Simple and Multiple Regression; Dummy Variables and its uses; Problems in Econometric Estimation— Endogeneity and Causality; Interpretation of Results, Presentation of Results, Writing a Research Report, References and Bibliography, Oral Presentation, Copyright and Plagiarism.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum discussion, Class room reading, Narration, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings
- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Fishbowl, Brainstorming
- Computer-based learning, Spreadsheets and Databases, Hands-on data analysis
- Case-Based Learning, Field visits, Surveys
- Essays, Assignments, Term papers, Case studies, Group projects, Panel discussions, Seminar presentations

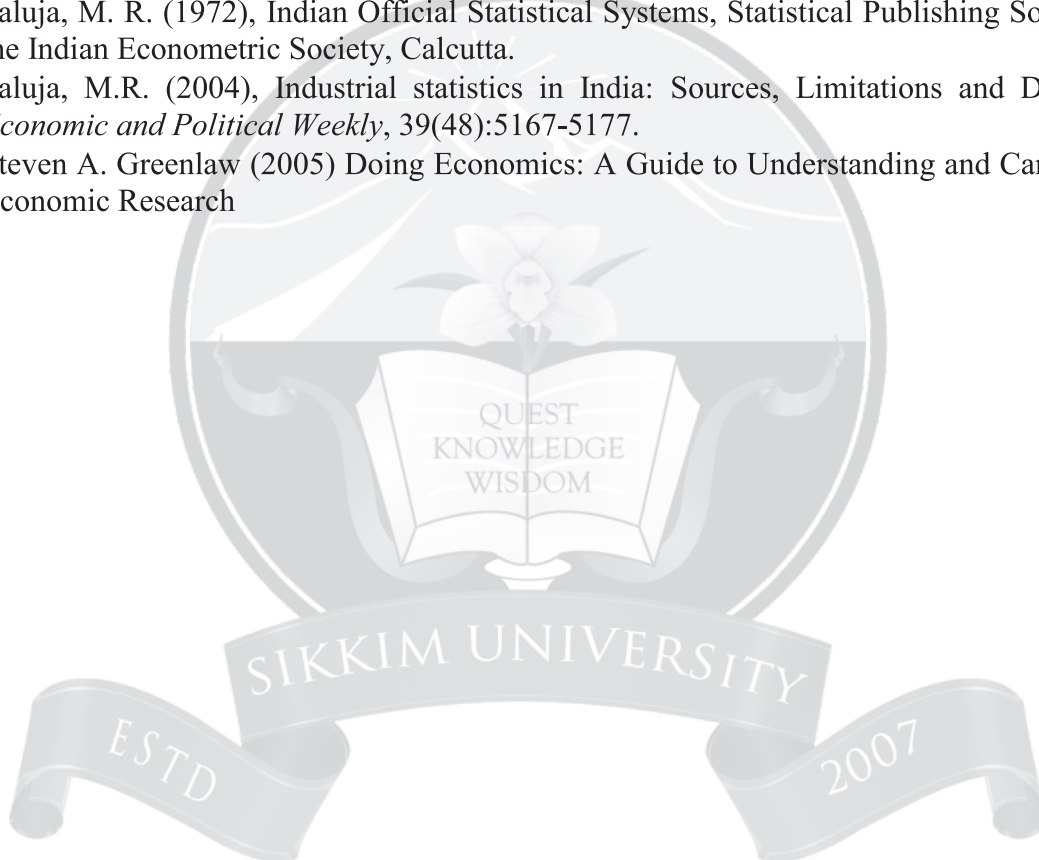
ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, Open Book Test, Self-Test, Online Test, Review of Literature, Objective Test, Class Assignment, Peer assessment, Paraphrasing, Exercise Classes, Home Assignment, Annotated Bibliographies, Proposal Writing, Reports, Book Review, Article Review	Oral Test, Viva-Voce, Hot seat, Brainstorming, Peer tutoring, Student becomes teacher, Group Discussion, Debates, Quiz, Seminar	Presentations, Seminars, Field Assignments, Surveys, Hands-on Data Analysis, Poster Presentations
Summative Assessment (50 Marks)	Summative assessment will be based on the semester-end examinations conducted by the university.		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Chandrasekhar, C. P. and Tilak, Jandhyala B G (eds.) (2001), India's Socio-economic Database: Surveys of Selected Areas, Tulika, Delhi.
- Ethridge, Don. (1995) Research Methodology in Applied Economics. Ames IA: Iowa State University Press.
- Goode & Hatt (2006): Methods in Social Research, McGraw Hill, California
- Gujarati, D. (2014), Econometrics by Example, Palgrave Macmillan, Hampshire, UK
- Manna, G.C. (2014), Data on Manufacturing Sector: Current Status and Challenges. In Kathuria, V., Raj, R.S.N. and Sen, K. (eds), Productivity in Indian Manufacturing: Measurements, Methods and Analysis, Routledge, New Delhi.
- Newbold, P., Carlson, W.L. and Thorne, B. (2007), Statistics for Business and Economics, Pearson Education, New Delhi.
- Rao, J. R. (1968), Indian Statistical System, IIPA, New Delhi.
- Saluja, M. R. (1972), Indian Official Statistical Systems, Statistical Publishing Society, and the Indian Econometric Society, Calcutta.
- Saluja, M.R. (2004), Industrial statistics in India: Sources, Limitations and Data Gaps, *Economic and Political Weekly*, 39(48):5167-5177.
- Steven A. Greenlaw (2005) Doing Economics: A Guide to Understanding and Carrying Out Economic Research



ECO-S-555
ECONOMIC ANALYSIS USING EXCEL SOLVER

Semester: Second Semester
L+T+P: 1+1+2=4 Credits

Course Level: 500
Lecture: 15 Hrs+ Tutorial: 15 Hrs+ Practical: 60 Hrs

Total Marks: 100

COURSE LEARNING OUTCOMES:

On completion of the course, the students will be able to:

CLO1: estimate important concepts used in microeconomics. For example, the students can identify different types of utility functions, preference curves, production functions and cost functions, utility maximization, cost minimization etc.

CLO2: categorize, clarify, classify, compare, contrast and conclude about the meanings from oral, theoretical, graphical, and algebraic expressions.

CLO3: integrate all the concepts and apply them in the real business decision making analysis and in real economic problems that the society is facing.

CLO4: analyze the interrelationship among various concepts, and will be able to understand the relative contribution of each concept in economic planning and in decision making problems.

CLO5: formulate innovative ideas in describing, comparing, expanding the existing concepts with new information and will be able to implement them through new procedures or through modifying the existing procedure.

CLO6: evaluate each and every term in terms of its use, its predictive power, its relevance in applying various economic methods, and in

CLO7: making overall judgement.

COURSE OUTLINE

UNIT-I: CONSUMER BEHAVIOR

Using Excel Solver: Demand and Supply Functions; Consumer's equilibrium solution: Budget Constraint, Preferences and Utility function; Initial equilibrium solution; deriving demand function; Comparative Statics; income Effect, substitution effect and price effect.

UNIT-II: PRODUCER BEHAVIOR

Using Excel Solver: Various types of production functions, Isoquants, Estimating production function and input cost minimization; Derivation of cost function and cost curves, and Estimation of consumers' and producers' surplus.

UNIT-III: GENERAL EQUILIBRIUM

Using Excel solver: Edgeworth Box Diagram, General Equilibrium Market Allocation, Pareto Optimality and General Equilibrium. Pure exchange model, Production and Consumption Model.

UNIT-IV: EXTERNALITY AND PUBLIC POLICY

Using Excel Solver; Estimation of Tax Incidence and Deadweight loss; Inefficiency of Monopoly; Externality in Excel Solver. Shifting demand and supply curve due to public policy.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum discussion, spreadsheet-based analysis, Narration, PowerPoint presentations, Clarification interaction, Web streaming, Video lessons, self-practice
- Class-room practice of excel solver
- Computer-based numerical analysis
- Text book exercise in class
- Assignments, Term papers, and presentations

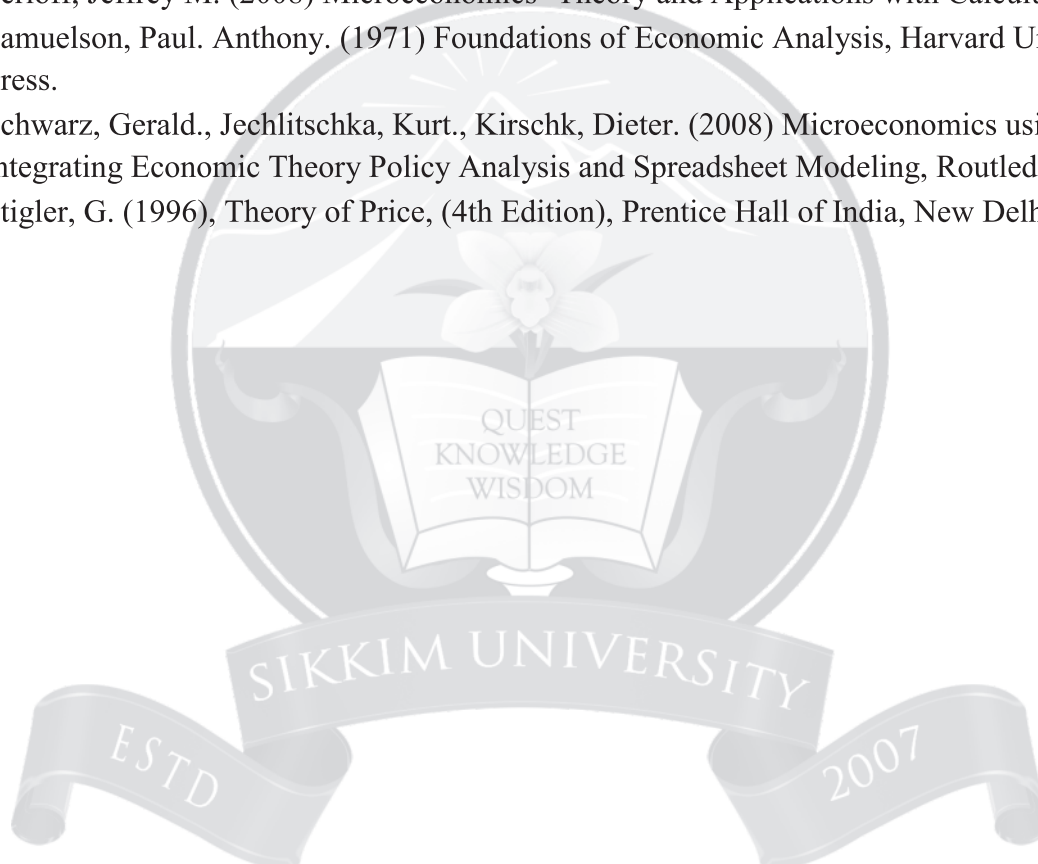
ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, MCQ Online Test, Objective Test, Class Assignment, Exercise Classes Home Assignment	Oral Test, Viva-Voce, Group Discussion, Debates, Computer based analysis, Seminar	Presentations, Seminars, Numerical data analysis
Summative Assessment (50 Marks)	Summative assessment will be based on the semester-end examinations conducted by the university.		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO

SUGGESTED READINGS:

- Barreto, H. (2009) Intermediate Microeconomics with Microsoft Excel, Cambridge University Press.
- Baumol, William, J (1960) Economic Theory and Operation Analysis, Prentice Hall Private Limited, New Delhi
- Burkett John P (2006). Microeconomics Optimization, Experiments, and Behavior.
- Friedman, Milton (2008) Price Theory, Babylon Publishing, USA.
- Henderson, J.M., and Quant, Richard, E (1958) Microeconomic Theory: A Mathematical Approach, McGraw Hill Company, NY.
- Jehle G. and Reny P. (2004). Advanced Microeconomic Theory, (3rd Edition) Prentice Hall, UK.
- Perloff, Jeffrey M. (2008) Microeconomics- Theory and Applications with Calculus
- Samuelson, Paul. Anthony. (1971) Foundations of Economic Analysis, Harvard University Press.
- Schwarz, Gerald., Jechlitschka, Kurt., Kirschk, Dieter. (2008) Microeconomics using Excel Integrating Economic Theory Policy Analysis and Spreadsheet Modeling, Routledge.
- Stigler, G. (1996), Theory of Price, (4th Edition), Prentice Hall of India, New Delhi.



ECO-C-601

INTERNATIONAL TRADE AND FINANCE

Semester: Third Semester**Course Level: 600****Total Marks: 100****L+T+P: 3+1+0 = 4 Credits****Lecture: 45 Hrs + Tutorial: 15 Hrs + Practical: 0 Hrs****Course Learning Outcomes:**

On completion of the course, the students will be able to:

CLO1: Equip the students the theoretical foundations of international trade.

CLO2: To help students gain understanding about interrelationship between trade and industry.

CLO3: To create impression about international trade policy and welfare among students.

CLO4: To make student gain insights about open economy macroeconomics

UNIT: PURE TRADE THEORY

Determination of National Supply & Demand; Demand & International Equilibrium; Classical and Neo-classical approach to Trade Theory; Factor Intensity & factor abundance; Production & Four Theorem of International Trade

UNITII: INTERNATIONAL TRADE MODELS

Increasing Return; A simple model of closed Economy; The Offer Curve; International Equilibrium; Industrial Organisation and Trade; Economies of scale & international trade; Imperfect Competition Models; Models relating to Intra Industry Trade

UNIT III: PROTECTION AND WELFARE

Tariff & Quota, Quota & Potential Monopoly; Tariff & Partial Equilibrium; Tariff & production, demand, welfare; Theory of Strategic Trade Policy; Trade and Welfare of Individuals, Gains from trade: Case of small country; Case of large country; World Welfare

UNITIV: OPEN ECONOMY

BoT & BoP, Mundell-Fleming Approach, International capital market, Co-determination of Interest rate & Exchange rate, Fixed & Flexible Exchange Rate, Money supply & Exchange Rate, LIBOR, International Debt; Foreign Direct & Portfolio Investment, Risk aversion & Foreign Portfolio Diversification

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum-discussion, Class room reading, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings
- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Fishbowl, Brainstorming
- Computer-based learning, Spreadsheets and Databases, Hands-on data analysis
- Essays, Assignments, Term papers, End semester exam, Case studies, Group projects, Panel discussions, Seminar presentations

ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, Online Test, Class Assignment, Home Assignment, Dissertation, Book Review	Oral Test, Viva-Voce, Group Discussion, Seminar	Presentation, Seminars, Field Assignments, Poster Presentations
Summative Assessment (50 Marks)	Semester-end examinations conducted by the university will be considered the mode of summative assessment		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Chacholiades, M. (2009), The Pure Theory of International Trade, Aldine Transaction, New Brunswick.
- Chacholiades, M. (1981), Principles of International Economics, Mc-Graw Hill Book Company, New Delhi.
- Krugman, P.R. and Obstfeld, M. (2013), International Economics: Theory and Policy, 8th Edition, Pearson Education, New Delhi.
- Kindleberger, C. P. (1998), International Economics, 8th Edition, Richard D. Irwin, Inc., USA.
- Mannur, H. G. (1996), International Economics, 2nd Revised Edition, Vikas Publishing House Pvt. Ltd., New Delhi.
- Sodersten, B. (1984), International Economics, 2nd Edition, Macmillan, Hong Kong.
- Sodersten, B. and Reed, G. (1994), International Economics, 3rd edition, Macmillan, New Delhi.
- Salvatore, D. (2000), International Economics, John Wiley, London.
- Thompson, H. (2011), International Economics: Global Markets and Competition, 2nd edition, Cambridge University Press India Pvt. Ltd., New Delhi.
- Kemp, M.C. (1964), The Pure Theory of International Trade, Englewood Cliffs, N.J.: Prentice-Hall, Inc.

Note: Latest edition of text books and reference books may be used.

ECO-S-602**ECONOMETRIC ANALYSIS USING SOFTWARES****Semester: Third Semester****Course Level: 600****Total Marks: 100****L+T+P: 1+1+2=4 Credits****Lecture: 15 Hrs + Tutorial: 15 Hrs + Practical: 60 Hrs****Course Learning Outcomes (CLOs):**

On completion of the course, the students will be able to:

CLO1: use both excel and econometric software for data management and statistical analysis

CLO2: conduct independent econometric and statistical analysis of data in an applied research setting

CLO3: demonstrate their understanding of applied econometric analysis models/methods with respect to choice of the model, estimation method and interpretation of results

CLO4: identify all possible misspecification in the context of single equation models using Eviews

CLO5: estimate qualitative response regression models and panel data regression models using Eviews and interpret the results

COURSE OUTLINE**UNIT I: SINGLE-EQUATION REGRESSION MODELS**

Estimation of the parameters in different models and also diagnostic check for Normality assumption and also interpretation of the results using both Excel and Eviews .

UNIT II: VIOLATION OF CLASSICAL ASSUMPTIONS

Verification of Autocorrelation, Heteroscedasticity, Multicollinearity and Simultaneity problems using both Excel and Eviews and also interpretation of the results.

UNIT III: QUALITATIVE RESPONSE REGRESSION MODELS

Estimation of Qualitative Response Regression models by using Eviews and also interpretation of the results.

UNIT IV: PANEL DATA REGRESSION MODELS

Estimation of the parameters of Panel Data Regression models using Eviews and also interpretation of the results.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum discussion, Class room reading, Narration, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings
- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Fishbowl, Brainstorming
- Computer-based learning, Spreadsheets and Databases, Hands-on data analysis
- Case-Based Learning, Field visits, Surveys
- Essays, Assignments, Term papers, Case studies, Group projects, Panel discussions, Seminar presentations

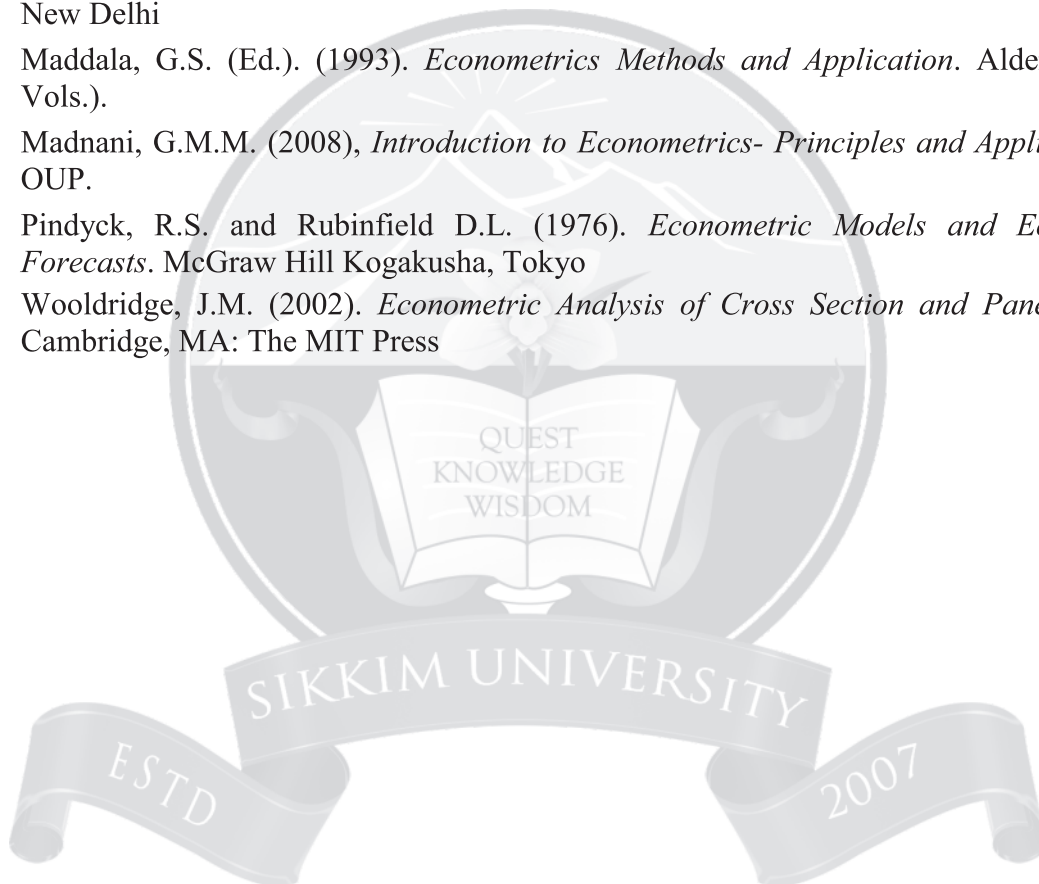
ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, Online Test, Objective Test, Class Assignment, Exercise Classes Home Assignment	Oral Test, Viva-Voce, Group Discussion, Seminar	Presentations, Seminars, Fields Assignments, Hands-on Data Analysis
Summative Assessment (50 Marks)	Summative assessment will be based on the semester-end examinations conducted by the university.		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Agung, I.Gusti Ngurah.(2011). Cross Section and Experimental Data Analysis Using Eviews. Singapore: John Wiley and Sons
- Bhaumik, S.K.(2015). Principles of Econometrics: A Modern Approach Using Eviews, Oxford University Press.
- Dongherty, C. (1992). *Introduction to Econometrics*. Oxford University Press, New York
- Goldberger, A.S. (1998). *Introductory Econometrics*. Harvard University Press. Cambridge, Mass
- Gourieroux C. A. Monfort. (2002). *Statistics and Econometric Models*. Cambridge University Press Vol. 1 and 2.
- Gujarati, D.N. and Sangeetha, (2007). *Basic Econometrics* (4th Edition), McGraw Hill, New Delhi
- Maddala, G.S. (Ed.). (1993). *Econometrics Methods and Application*. Aldershot (2 Vols.).
- Madnani, G.M.M. (2008), *Introduction to Econometrics- Principles and Applications*. OUP.
- Pindyck, R.S. and Rubinfeld D.L. (1976). *Econometric Models and Economic Forecasts*. McGraw Hill Kogakusha, Tokyo
- Wooldridge, J.M. (2002). *Econometric Analysis of Cross Section and Panel Data*. Cambridge, MA: The MIT Press



ECO-O-603
INDIAN ECONOMY

Semester: Third Semester
L+T+P: 3+1+0=4 Credits

Course Level: 600
Lecture: 45 Hrs + Tutorial: 15 Hrs + Practical: 0 Hrs

Total Marks: 100

Course Learning Outcomes (CLOs):

After completing this course, the students will be able to:

CLO1: To describe and verbalize the basic concepts and measures of Indian Economy

CLO2: To comprehend and explain the various planning models and its impact on various sectors of Indian Economy.

CLO3: To compare reforms undertaken in different sectors of the economy and its impact therein

CLO4: To illustrate different measurement issues poverty, gender development, human development indexes

CLO5: To demonstrate growth and its trend of various sectors of economy (applying)

CLO6: To exhibit expertise on data analysis of different indicators of development, Learn a detailed analysis of challenges faced by and opportunities available for the economy and its use for policymaking

CLO7: To forecast various indicators of economy to Create suitable growth models for faster growth

COURSE OUTLINE

UNIT I: PLANNING IN INDIAN ECONOMY

Growth and Structure of Indian Economy, Characterization of Indian Economy as a Developing Economy, Features and Objectives of Economic Planning in India, Economic Reforms in India - Liberalisation, Privatisation and Globalisation, Major developments in Post Economic Reforms Period, NITI Aayog. HDI and gender development indexes in India with respect to world.

UNIT II: AGRICULTURE, INDUSTRY & SERVICES

Performances of Agriculture sector, Causes and measures of low productivity in Indian agriculture; Land reforms, Agricultural inputs and Green Revolution; Agricultural Credit and Marketing; evaluation of Agriculture policy; WTO and Indian agriculture; Food Security and Public Distribution System.

Performances of industrial sector, Problems of small scale and cottage industries and government policy in India; industrial policy in pre and post reform period in India; public enterprises and private sector in the post liberalisation period; Performance of Service Sector in India; Causes of rapid growth of Tertiary Sector in India.

UNIT III: CONFRONTING CHALLENGES IN INDIAN ECONOMY

Confronting issues in Indian economy-Unemployment, Poverty, Inflation and Regional Disparities; Impact of Covid-19, demonetization, global situation like war, conflicts, recession, inflation etc on Indian Economy.

UNIT IV: MISCELLANEOUS

External Sector- Composition and Direction of India's Foreign Trade, Recent foreign trade policy in India; Monetary and Fiscal Policy in India, Banking and financial sector reforms, evaluation of Indian tax structure; Goods and Services Tax in India.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum discussion, Class room reading, Narration, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings
- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Fishbowl, Brainstorming
- Computer-based learning, Spreadsheets and Databases, Hands-on data analysis
- Case-Based Learning, Field visits, Surveys
- Essays, Assignments, Term papers, Case studies, Group projects, Panel discussions, Seminar presentations

ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment Marks)	Class Test, Open Book Test, Self-Test, Online Test, Review of Literature, Objective Test, Class Assignment, Peer assessment, Paraphrasing, Exercise Classes, Home Assignment, Annotated Bibliographies, Proposal Writing, Reports, Book Review, Article Review	Oral Test, Viva-Voce, Hot seat, Brainstorming, Peer tutoring, Student becomes teacher, Group Discussion, Debates, Quiz, Seminar	Presentations, Seminars, Field Assignments, Surveys, Hands-on Data Analysis, Poster Presentations
Summative Assessment Marks)	(50 Summative assessment will be based on the semester-end examinations conducted by the university.		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Ahluwalia, I.J. and I.M.D. Little (Eds.) (1999), India's Economic Reforms and Development (Essays in honour of Manmohan Singh), Oxford University Press, New Delhi
- Datt, R. (Ed.) (2001), Second Generation Economic Reforms in India, Deep & Deep Publications, New Delhi.
- Datt, R. and K.P.M. Sundharam (2022), "Indian Economy", S. Chand & Company Ltd., New Delhi
- Government of India, Economic Survey (Annual), Economic Division, Ministry of Finance, New Delhi.
- Kapila U, "Indian economy since independence", Academic foundation, New Delhi
- Misra, S.K. and V.K. Puri, "Indian Economy — Its Development Experience", Himalaya Publishing House, Mumbai
- Reserve bank of India Bulletin
- Reserve Bank of India, Report on Currency and Finance, (Annual).
- Sen, R.K. and B. Chatterjee (2001), Indian Economy: Agenda for 21st Century (Essays in honour of Prof. P.R. Brahmananda), Deep & Deep Publications, New Delhi
- Economic survey
- Newspapers like Business standard, Economic times

ECO-O-604
GLOBALIZATION AND DEVELOPMENT

Semester: Third Semester
L+T+P: 3+1+0=4 Credits

Course Level: 600

Total Marks: 100
Lecture: 45 Hrs + Tutorial: 15 Hrs + Practical: 0 Hrs

Course Learning Outcomes (CLOs):

On completion of the course, the students will be able to:

CLO1: To make students aware about the wave of globalization and development emerging at the very fast rate.

CLO2: To comprehend the evolution of different components of globalization emerged in the society and economy.

CLO3: To understand the origin of globalization theories and development policies of a country

CLO4: To teach students how globalization has been impacted positively or negatively to the local level.

COURSE OUTLINE

UNIT I: HISTORICAL PERSPECTIVE AND ECONOMICS OF GLOBALIZATION

Globalization and its genesis— Growth and trend of globalization; Similarities and differences of the present globalization with an earlier epoch of globalization during the late nineteenth century; Emergence of developing countries in the world economy.

Economics of globalization— Economic characteristics, manifestations and drivers of globalization in the present phase; Economic impact of globalization and its consequences for development; Globalization with some focus on the gap between rich and poor.

UNIT II: GLOBALIZATION AND MACROECONOMIC THEORIES

Growing interdependence and deepening integration of economies; Globalization and macroeconomic objectives and shifted the focus of macroeconomic policies in developing countries; Debate on the for and against the globalization; Orthodox prescription of markets and globalization as a strategy of development; Critique of its theoretical foundations in terms of economic theory and examines lessons from the development experience during the second half of the twentieth century.

UNIT III: INSTITUTIONS AND RULES

Institutions and cross-border movement of goods, services, technology and finance; WTO, GATT, IMF, World Bank and their emerging rules in the world economy; Asymmetric and unfair global rules in the multilateral trading system and the international financial system.

UNIT IV: NATIONAL AND INTERNATIONAL CONTEXT

Exploring how globalization could be made more conducive to economic development for the poor countries and poor people; Introducing corrective and redesign strategies to bring egalitarian development; Reshaping the rules of the game and contemplate some governance of globalization to create more policy space for the pursuit of national development objectives.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum-discussion, Class room reading, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings
- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Fishbowl, Brainstorming
- Case-Based Learning, Field visits, Surveys
- Essays, Assignments, Term papers, End semester exam, Case studies, Group projects, Panel discussions, Seminar presentations

ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, Online Test, Class Assignment, Home Assignment, Dissertation, Book Review	Oral Test, Viva-Voce, Group Discussion, Seminar	Presentation, Seminars, Field Assignments, Poster Presentations
Summative Assessment (50 Marks)	Semester-end examinations conducted by the university will be considered the mode of summative assessment		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Amin, Samir (2003). *Obsolescent Capitalism: Contemporary Politics and Global Disorder*, Zed Books, Delhi.
- Bairoch, Paul (1993). *Economics and World History: Myths and Paradoxes*, University of Chicago Press, Chicago.
- Baker, Dean, Gerald Epstein and Robert Pollin eds. (1998). *Globalization and Progressive Economic Policy*, Cambridge University Press, Cambridge.
- Bhagwati, Jagdish (2004). *In Defence of Globalization*, Oxford University Press, Oxford.
- Chang, Ha-Joon (2002). *Kicking Away the Ladder: Development Strategy in Historical Perspective*, Anthem Press, London.
- Deepak Nayyar (2006). *Stability with Growth: Macroeconomics, Liberalization and Development*, Oxford University Press, Oxford.
- Findlay, Ronald and Kevin H. O'Rourke (2007). *Power and Plenty: Trade, War and the World Economy in the Second Millennium*, Princeton University Press, Princeton.
- Friedman, Thomas L. (2007). *The World is Flat*, Farrar: Straus and Giroux.
- Rodrik, Dani (2007). *One Economics, Many Recipes: Globalization, Institutions and Economic Growth*, Princeton University Press, Princeton.
- Stiglitz, Joseph (2012). *Globalization and its Discontents*, Penguin Books, Gurgaon.

Note: Latest edition of text books and reference books may be used.

ECO-E-605
ADVANCED ECONOMETRICS

Semester: Third Semester
L+T+P: 3+1+0=4 Credits

Course Level: 600
Lecture: 45 Hrs+ Tutorial: 15 Hrs+ Practical: 0 Hrs

Total Marks: 100

Course Learning Outcomes (CLOs):

On completion of the course, the students will be able to:

CLO1: comprehend the students a clear idea about refined techniques beyond basic econometrics

CLO2: Understand the differences between quantitative and qualitative regression models and also the regression models involving the time series data and panel data

CLO3: Understand how to develop, estimate and interpret qualitative regression models

CLO4: Understand how to develop, estimate and interpret panel data regression models

CLO5: apply econometric theory as well as different software packages to concrete examples statistical in economics in different real life situations

COURSE OUTLINE

UNIT I: MODELS WITH LIMITED DEPENDENT AND QUALITATIVE VARIABLES

Binary choice models— linear probability model, probit, and logit models; Multi response models— multinomial logit and ordered probit models; Truncated and Censored regressions; Tobit model.

UNIT II: DYNAMIC ECONOMETRIC MODELS

Autoregressive and Distributed-Lag Models— Estimation of Distributed-Lag Models; Estimation of Autoregressive Models; Exogeneity tests, Wu-Hausman test.

UNIT III: INTRODUCTION TOTIME SERIES ANALYSIS

Stationarity; Autocorrelations and Partial Auto-correlation Functions; Unit roots and Units roots tests; ARIMA modelling; ARCH/GARCH models; VAR models and Granger causality; Co-integration.

UNIT IV: PANEL DATA REGRESSION MODELS

Estimation of Panel Data Regression Models— the Fixed Effects Approach, the Random Effects Approach; Fixed Effects (LSDV) versus the Random Effects model.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum discussion, Class room reading, Narration, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings
- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Fishbowl, Brainstorming
- Computer-based learning, Spreadsheets and Databases, Hands-on data analysis
- Case-Based Learning, Field visits, Surveys
- Essays, Assignments, Term papers, Case studies, Group projects, Panel discussions, Seminar presentations

ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, Online Test, Objective Test, Class Assignment, Exercise Classes Home Assignment	Oral Test, Viva-Voce, Group Discussion, Seminar	Presentations, Seminars, Fields Assignments, Hands-on Data Analysis
Summative Assessment (50 Marks)	Summative assessment will be based on the semester-end examinations conducted by the university.		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Baltagi, B.H (2005): *Econometric Analysis of Panel Data*, John Wiley & Sons Ltd.
- Cameron, C. and Trivedi P. (2005): *Micro Econometrics*, Cambridge: Cambridge Univ. Press.
- Chow, Gregory C.: *Econometric Methods*, McGraw-Hill, New York, 1983.
- Davidson and MacKinnon (2004). *Econometric Theory and Methods*, Oxford University Press.
- Desai, Meghnad: *Applied Econometrics*, McGraw-Hill, New York, 1976.
- Goldberger (1991). *A Course in Econometrics*. Harvard University Press.
- Greene (2003). *Econometric Analysis*. 5th edition, Prentice Hall.
- Johnston and Di-Nardo (1997). *Econometric Methods*. 4th edition, McGraw-Hill.
- Maddala (1982). *Limited-dependent and Qualitative Variables in Econometrics*. Cambridge University Press.
- Wooldridge, J.M (2002). *Econometric Analysis of Cross Section and Panel Data*. MIT Press.

ECO-E-606
INDUSTRIAL ECONOMICS

Semester: Third Semester
L+T+P: 3+1+0 = 4 Credits

Course Level: 600
Lecture: 45 Hrs + Tutorial: 15 Hrs + Practical: 0 Hrs

Total Marks: 100

Course Learning Outcomes:

On completion of the course, the students will be able to:

CLO1: Create understanding about functioning of industrial organization under various forms of market structure among the students.

CLO2: Equip students about role of innovation in industrial organization

CLO3: To create impression about industrial finance and insurance among students.

CLO4: To make student gain insights about functioning of industrial labour market

UNIT I: INDUSTRIAL ORGANISATION AND MARKET STRUCTURE

Technology, production cost and demand, Optimum size of firm; Review on theory of firm & industry; Competitive equilibrium and welfare; Equilibrium with simultaneous move (Quantity & Price) — Free entry equilibrium, Welfare, etc.; Best response & stability, uniqueness; Equilibrium with sequential move; Reaching an agreement; Issues in entry deterrence; Repeated game; Alternative motives of firm, Industrial efficiency—Concept & its measurement

UNIT II: INNOVATION & SPILL OVER, AGGLOMERATION

Classification of process innovation; Innovation as a race, Expected date of discovery, Case for a single firm & case for two firm, Equilibrium in R&D race, Society's optimal R&D level, Innovator choice of R&D level for a given duration of patent, Patent, Duration of patent, Society's optimal duration of patent, Optimal patent & economic welfare, Adaption and diffusion of innovation, Innovation and durability trade-off, Warranties, Economics of compatibility and standards, Advertising, Agglomeration and choice for industrial location.

UNIT III: INDUSTRIAL FINANCE, UNCERTAINTY & INSURANCE

Sources of industrial finance (short & long term); Cost of capital to industries; Capital structure decision; working capital financing; long term asset financing, Institutions for industrial finance, Venture capital financing, Uncertainty in industrial organisation, Determinants of demand for insurance

UNIT IV: DEMAND AND SUPPLY OF INDUSTRIAL INPUT

Input demand and its pricing under perfect and imperfectly Competitive Industry, Overtime pay & supply of labour service, Substitution & scale effect, Minimum wage law, Time & goods constraint, Reservation wage, Non labour income, Unemployment Compensation full disability, Welfare system

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum-discussion, Class room reading, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings

- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Fishbowl, Brainstorming
- Computer-based learning, Spreadsheets and Databases, Hands-on data analysis
- Essays, Assignments, Term papers, End semester exam, Case studies, Group projects, Panel discussions, Seminar presentations

ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, Online Test, Class Assignment, Home Assignment, Dissertation, Book Review	Oral Test, Viva- Voce, Group Discussion, Seminar	Presentation, Seminars, Field Assignments, Poster Presentations
Summative Assessment (50 Marks)	Semester-end examinations conducted by the university will be considered the mode of summative assessment		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Shy, Oz. (1996), Industrial Organisation: Theory and Applications, MIT Press, Massachusetts.
- Tirole, J. (1988), The Theory of Industrial Organization, MIT Press, Cambridge.
- Tremblay, Victor J. and Tremblay, Carol Horton. (2012), New Perspectives on Industrial Organisation with Contributions from Behavioural Economics & Game Theory, Springer, USA.
- Church, J. & Ware, R. (2000), Industrial Organization: A Strategic Approach, McGraw-Hill, New York.

Note: Latest edition of text books and reference books may be used.

ECO-E-607
PUBLIC FINANCE

Semester: Third Semester**Course Level: 600****Total Marks: 100****L+T+P: 3+1+0=4 Credits****Lecture: 45 Hrs+ Tutorial:15 Hrs + Practical: 0 Hrs****COURSE LEARNING OUTCOMES:**

On completion of the course, the students will be able to:

CLO1: retrieve, recognize and recall relevant knowledge for long term memory. For example, the students will be able to define, identify list recognize and reproduce different types of goods, different types of externalities, various categories of taxes, impacts of taxes on individuals and on the economy.

CLO2: categorize, clarify, classify, compare, contrast and conclude about the meanings from oral, theoretical, graphical, and algebraic expressions. The students will be able to compare the different budgetary policies and their outcomes and will be able to explain and conclude about those concepts.

CLO3: integrate all the concepts and apply them in the real budgetary analysis of an economy especially of Indian economy.

CLO4: analyze the interrelationship among various concepts such as the relationship between public revenue and public expenditure, impact of taxes on the economy, impact of monetary and fiscal policies in time of economic booms or slowdowns,

CLO5: formulate innovative ideas in describing, comparing, expanding the existing concepts with new information such as (current budget and current economic challenges) and will be able to able to implement them through new procedures or through modifying the existing approaches.

CLO6: evaluate each and every term in terms of its use, its predictive power, its relevance in applying various economic methods, and in making overall judgement, for example whether government should spend more on subsidizing various essential goods; whether the tax rate should be changed or tax base should be broadened; how the externality problems in production and consumption can be solved.

COURSE OUTLINE**UNIT I: PROVISION OF PRIVATE AND PUBLIC GOOD**

Need For Public Sector; Major Functions; Social Goods, Market Failure, Provision of Social Goods Comparison With Private Goods; Efficient Provision of Private Goods and Public Goods; Approaches to Distributive Justice- Endowment Based Criteria, Utilitarian Criteria, Egalitarian Criteria.

UNIT II: PUBLIC EXPENDITURE

Role of Public Expenditure in Developing Countries; Progressive and Regressive Public Expenditure; Peacock-Wiseman Hypothesis; Expenditure Evaluation Principles: Types of Benefits and Costs and Weights to Costs and Benefits, Efficiency of Projects; Issues in Public Projects.

UNIT III: PUBLIC REVENUE AND PUBLIC DEBT

Cannons of Taxation; Theory of Tax Incidence; Partial Equilibrium View and General Equilibrium View; Tax Distortion in Partial and General Equilibrium Framework; Magnitude of Excess Burden; Public Debt; Effects of Public Debt on Economy; Principles of Debt Management.

UNIT IV: FISCAL FEDERALISM AND FISCAL POLICY PRINCIPLES

Fiscal federalism in India, constitutional provisions, Finance Commission and NITI Ayog (Earlier Planning Commission); Centre and State Financial Relation in India, Objectives of fiscal policy, interdependence of fiscal and monetary policies, budgetary deficits and its implications.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum discussion, Class room reading, Narration, PowerPoint presentations, Clarification interaction, Web streaming, Video lessons, Library readings
- Newspaper discussion on economic affairs
- Journal papers critical review
- Assignments, Term papers, and presentations

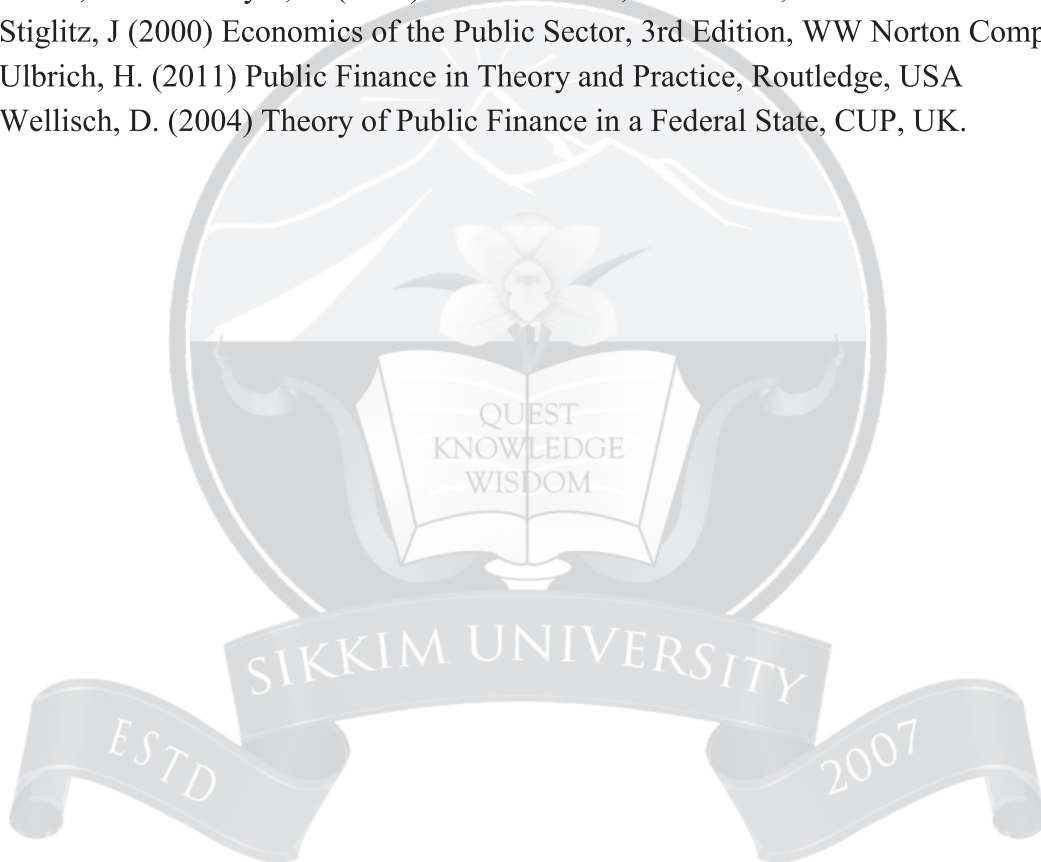
ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, MCQ framing test, Online Test, Objective Test, Class Assignment, Exercise Classes, Home Assignment, Critical review of papers	Oral Test, Viva-Voce, Group Discussion, Debates, Newspaper discussion, Quiz, Seminar	Presentations, Seminars, Numerical data analysis, Current economic Affairs PPT presentation
Summative Assessment (50 Marks)	Summative assessment will be based on the semester-end examinations conducted by the university.		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Buchanan, J.M., and Tollison, Robert .D. (2009) (edited) The Theory of Public Choice-II, University of Michigan Press.
- Gruber, J (2011) Public Finance and Public Policy, Worth Publisher, NY.
- Hillman, A. I (2009) Public Finance and Public Policy: Responsibilities and Limitation of Government, 2nd Edition, CUP.
- Hindricks, J and Myles, G.D. (2006) Intermediate Public Economics, MIT Press.
- Musgrave, R.A and Musgrave, P.B (2004) Public Finance in Theory and Practice, Tata Mac Graw Hill, New Delhi.
- Rosen, Harvey. S., and Ted, Gayer (2008) Public finance, McGraw-Hill International Edition, Singapore.
- Rosen, S.N and Gayer, T. (2008) Public Finance, 8th Edition, Tata Mac Graw Hill.
- Stiglitz, J (2000) Economics of the Public Sector, 3rd Edition, WW Norton Company.
- Ulbrich, H. (2011) Public Finance in Theory and Practice, Routledge, USA
- Wellisch, D. (2004) Theory of Public Finance in a Federal State, CUP, UK.



ECO-E-608
FINANCIAL ECONOMICS

Semester: Third Semester

Course Level: 600

Total Marks: 100

L+T+P: 3+1+0=4 Credits

Lecture: 45 Hrs+ Tutorial:15 Hrs +Practical: 0 Hrs

Course Learning Outcomes (CLOs):

On completion of the course, the students will be able to:

CLO1: retrieve, recognize and recall relevant knowledge for long term memory. For example, the students will be able to define, identify underlying analytical principles and research techniques used in financial economics, as well as the ability to write in a clear and coherent manner about the issues involved.

CLO2: categorize, clarify, classify, compare, contrast and conclude about the meanings from oral, theoretical, graphical, and algebraic expressions.

CLO3: integrate all the concepts and apply them in the Modigliani and Miller (M-M) financial policy irrelevance theorems as basis for the factors that determine the debt-equity and dividend policy choices of firms.

CLO4: analyze the interrelationship among various concepts such as the relationship between underlying analytical principles and research techniques used in financial economics.

CLO5: formulate innovative ideas in describing, comparing, expanding the existing concepts with analytical principles and research techniques used in financial economics, as well as the ability to write in a clear and coherent manner about the issues involved.

CLO6: evaluate each and every term in terms of its use, its predictive power, its relevance in applying various economic methods, and in making overall judgement, for role played by time, uncertainty, information and inflation in evaluating financial instruments

COURSE OUTLINE

UNIT I: BASIC CONCEPTS IN FINANCE-I

Introduction to Financial Economics, Subject Matter, Scope and Relevance; Financial Markets— Financial Instruments, Financial Claims-Relation between Stocks and Flows; Introduction to Corporate Finance-Forms of Business OrganizationGoals of Financial Management, The Agency Problem; Basic Concepts in Finance— Assets and Liabilities; The Balance Sheet; Profit and Loss Account; Net Working Capital; Liquidity; Time Value of Money— Rationale, Net Present Value, Practical Applications.

UNIT II: BASIC CONCEPTS IN FINANCE-II

Statement of Changes in Financial Position; Cash Flow Statement; Funds Flow Statement; Ratio Analysis— Different Kinds of Financial Ratios, Calculation and Importance in Financial Analysis; Investment Criteria— Internal Rate of Return, Rate of Interest— Period, Compounded and Effective Annual Rates of Interest; Risk and Return — Importance, Measurement of Risk and Return of an Asset; Measurement of Risk and Return of a Portfolio; Systematic and Unsystematic Risk.

UNIT III: SECURITY MARKETS

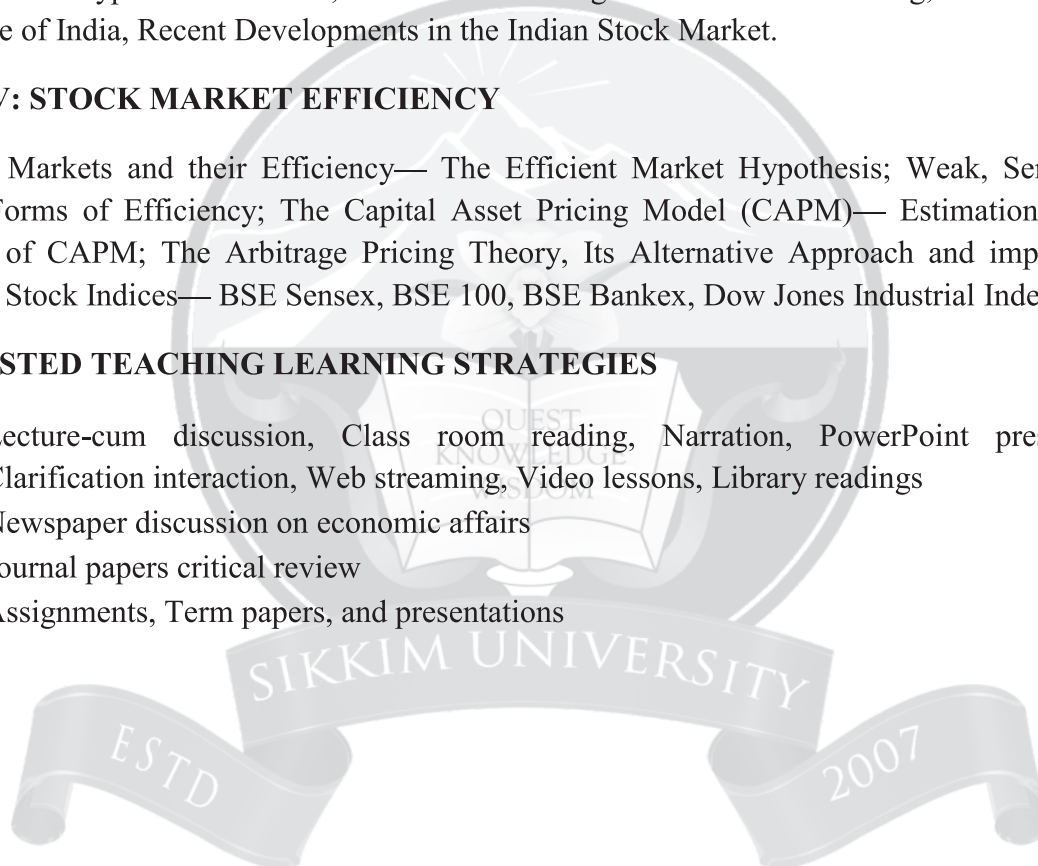
The Supply of Securities— Characteristics, Government Bonds, Index Linked Bonds, Pure Discount Bonds, Spot Yields, Coupon Paying Bonds; The Cost of Capital— Debt and Equity; Costs of Debt, Equity and Preferred Stock; Capital Market— Primary Market and Secondary Markets; Shares and Debentures— Types and issuance; The Stock Exchange— Methods of Trading, Over the Counter Exchange of India, Recent Developments in the Indian Stock Market.

UNIT IV: STOCK MARKET EFFICIENCY

Security Markets and their Efficiency— The Efficient Market Hypothesis; Weak, Semi-Strong, Strong Forms of Efficiency; The Capital Asset Pricing Model (CAPM)— Estimation of Betas, Validity of CAPM; The Arbitrage Pricing Theory, Its Alternative Approach and importance in Finance; Stock Indices— BSE Sensex, BSE 100, BSE Bankex, Dow Jones Industrial Index.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum discussion, Class room reading, Narration, PowerPoint presentations, Clarification interaction, Web streaming, Video lessons, Library readings
- Newspaper discussion on economic affairs
- Journal papers critical review
- Assignments, Term papers, and presentations



ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment Marks)	Class Test, MCQ framing test, Online Test, Objective Test, Class Assignment, Exercise Classes Home Assignment, Critical review of papers	Oral Test, Viva-Voce, Group Discussion, Debates, Newspaper discussion Quiz, Seminar	Presentations, Seminars, Numerical data analysis Current economic Affairs PPT presentation
Summative Assessment Marks)	Summative assessment will be based on the semester-end examinations conducted by the university.		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Houthakkar, H.S. and Williamson, P.J. (1998). The Economics of Financial Markets, Oxford University Press, New Delhi.
- Jurgen Eichberger and Ian R Harper. (1998). Financial Economics, Oxford University Press, London.
- Khan, M Y. and Jain, P K. (2004). Financial Management: Text, Problems and Cases, Tata McGraw Hill, New Delhi. 28
- Prasanna Chandra. (2004). Financial Management: Theory and Practice, Tata McGraw Hill, New Delhi.
- Ross, Stephan A; Rudolph W.; Westerfield and Jaffe, Jaffrey. (2004). Corporate Finance, McGraw Hill, Irwin.
- Van Horne, J.C. (2005). Financial Management and Policy, Prentice-Hall, New Delhi.

ECO-E-609

STRUCTURE AND GROWTH OF INDIAN INDUSTRIES

Semester: Third Semester

Course Level: 600

Total Marks: 100

L+T+P: 3+1+0=4 Credits

Lecture: 45 Hrs+ Tutorial: 15 Hrs+ Practical: 0 Hrs

Course Learning Outcomes:

On completion of the course, the students will be able to:

CLO1: describe and articulate various debates on industrial development and structural shifts in Indian industry from a historical perspective

CLO2: comprehend and explain the evolution of Indian industry since Independence, in terms of its size and growth, and the sector's contribution to overall economic performance

CLO3: discern the strengths and weaknesses of various measures of industrial performance and to fathom how these measures find application in evaluating industrial development

CLO4: analyse the various institutional changes adopted by the Indian Government and to study their influence on the development of the industrial sector

CLO5: identify and formulate relevant research questions on issues pertaining to Indian industry based on conceptual understanding and empirical facts

COURSE OUTLINE**UNIT I: INDUSTRIALISATION AND DEVELOPMENT**

On the centrality of industry; Autonomous industrialization vs. State-aided; Import Substitution vs Export Promotion; Late industrialisation and premature oligopoly.

UNIT II: INDUSTRIAL STRUCTURE IN INDIA

(i) *Nature of Indian monopoly*— Representative unit and oligopolistic behaviour; Implications for prices, output & technical change; Effects of deregulation and liberalisation. (ii) *Role of foreign capital*— Forms of foreign investment; Balance of payments impact. (iii) *Small-scale sector*: Structural characteristics and growth; empty middle and efficiency. (iv) *Public Sector in theory & practice*— Case for public investment; structural evolution of India's public sector; question of "efficiency"; privatisation debate and experience.

UNIT III: GROWTH AND STAGNATION - INDIA'S POST-INDEPENDENCE INDUSTRIAL DEVELOPMENT RECORD

(i) Phases of industrial development; (ii) Assessing Import Substitution - Indian Experience— agricultural constraint; Income distribution and demand; Public investment and growth; neoclassical critique; Explaining liberalisation and neo-liberal reform.

UNIT IV: EXPERIENCE WITH LIBERALISATION

(i) Industrial growth during the 1980s— Growth process during the 1980s; changing role of finance; Structural change during the 1980s. (ii) Industrial growth during the 1990s— Industrial reform during the 1990s, Licensing reform, De-reservation Reform, Anti-trust and competition policy, Import liberalisation, Foreign investment after liberalisation; growth process during the 1990s; financing of investment. Some international comparisons and implications

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum discussion, Class room reading, Narration, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings
- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Brainstorming
- Case-Based Learning, Field visits, Surveys
- Essays, Assignments, Term papers, Case studies, Group projects, Panel discussions, Seminar presentations

ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, Open Book Test, Self-Test, Online Test, Objective Test, Class Assignment, Peer assessment, Home Assignment	Oral Test, Viva-Voce, Brainstorming, Student becomes teacher, Group Discussion, Quiz	Presentations, Seminars, Debates
Summative Assessment (50 Marks)	Summative assessment will be based on the semester-end examinations conducted by the university.		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Ahluwalia, Isher J. (1985), *Industrial Growth in India: Stagnation since the Mid-Sixties*, Delhi: Oxford University Press.
- Bagchi, A.K. (1972), *Private Investment in India, 1900-39*, Cambridge: Cambridge University Press.
- Bagchi, A.K. (1987), *Public Intervention and Industrial Restructuring in China, India and the Republic of Korea*, New Delhi: ILO-ARTEP.
- Bhagwati, Jagdish & Padma Desai (1970), *Planning for Industrialisation: Trade and Industrialisation Policies 1950-66*, Delhi: Oxford University Press.
- Nayyar, Deepak (1994), *Industrial Growth & Stagnation: The Debate in India*, Delhi: Oxford University Press.
- Gokarn, S., A. Sen and R. Vaidya (2004). *The Structure of Indian Industry*. Delhi: Oxford University Press.
- Sen, K. (2008). *Trade Policy, Inequality, and Performance in Indian Manufacturing*. London: Routledge.
- Kathuria, V., Raj, R.S.N. and Sen, K. (2014). *Productivity in Indian Manufacturing: Measurements, Methods and Analysis*, Routledge, New Delhi.
- Panagariya, Arvind. (2008). *India: The Emerging Giant*. New Delhi: Oxford University Press.
- Mookherjee, D. (1995), *Indian Industry: Policies and Performance*, Oxford: Oxford University Press.
- Rajesh Raj S. N. and Komol Singha (2022), *The Routledge handbook of Post-Reform Indian Economy*, Routledge.



ECO-E-610**HISTORY OF ECONOMIC THOUGHT**

Semester: Third Semester
L+T+P: 3+1+0=4 Credits

Course Level: 600
Lecture: 45 Hrs + Tutorial: 15 Hrs + Practical: 0 Hrs

Total Marks: 100

Course Learning Outcomes (CLOs):

On completion of the course, the students will be able to:

CLO1: To broaden their understanding of the concept of History of Economic Thought and how it varies from Economic History and History of Economics.

CLO2: To comprehend the evolution of different economic theories.

CLO3: To understand the origin of economics and how to shape the economic and political policies of a country

CLO4: To teach students how economic methodology and theories have been applied in different societies.

COURSE OUTLINE**UNIT I: NATURE AND IMPORTANCE OF ECONOMIC THOUGHT**

History of Economics and Economic History— Different from the History of Economic thought; Mercantilism— Views on Trade, Money and Prices, Wages and Employment; Physiocracy— Natural Order; Net product and Circulation of Wealth.

UNIT II: CLASSICAL THOUGHT

Adam Smith— Theories of Value, Distribution and Growth; Ricardian Economics— Value Analysis, Theories of Trade and Distribution, Views on Machinery and Employment; Glut controversy— Ricardo-Malthus glut controversy.

UNIT III: MARXIAN ECONOMICS

Hegel, Marx and Engels — Materialism vs idealism; Capitalism to Socialism— Historical Materialism and Marx's Interpretation of History, Dialectical Materialism, Labour Theory of Value, Development and Decay of Capitalism.

UNIT IV: ESSENTIAL FEATURES OF MARGINALISM

Marginalism— Jevon's Theory of Value; Walras's Theory of General Equilibrium; Overview of Marshall's Contribution.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum-discussion, Class room reading, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings
- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Fishbowl, Brainstorming
- Case-Based Learning, Field visits, Surveys
- Essays, Assignments, Term papers, End semester exam, Case studies, Group projects, Panel discussions, Seminar presentations

ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, Online Test, Class Assignment, Home Assignment, Dissertation, Book Review	Oral Test, Viva-Voce, Group Discussion, Seminar	Presentation, Seminars, Field Assignments, Poster Presentations
Summative Assessment (50 Marks)	Semester-end examinations conducted by the university will be considered the mode of summative assessment		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- A.K. Dasgupta (1986): Epochs of Economic Theory, Oxford University Press, New Delhi.
- D.P.O. Brien (1975): The Classical Economists, London, Oxford University Press.
- Dobb, Maurice (1975): Theories of Value and Distribution since Adam Smith, CUP.
- E. Mandel (1971): Marxist Economic Theory, Rupa & Co.
- Eric Roll (1992): History of Economic Thought, Faber and Faber.
- Gide, C. and Rist C. (1948): A History of Economic Doctrines, George G. Harap & Co.
- Krishna Bhardwaj (1978): Classical Political Economy and Rise to Dominance of Supply and Demand Theories, Oxford University Press.
- M. Blaug (1983): Economic Theory in Retrospect, Vikas Publishing House, 3rd Edition (Cambridge University Pub.).
- Schumpeter, J.A. (1954): History of Economic Thought, Oxford University Press.
- Robert L. Heilbroner (1999): The Worldly Philosophers: The Lives, Times and Ideas of the Great Economic Thinkers, Simon & Schuster (7th edition).

Note: Latest edition of text books and reference books may be used.

ECO-E-611
ECONOMICS OF SOCIAL SECTOR

Semester: Third Semester
L+T+P: 3+1+0=4 Credits

Course Level: 600
Lecture: 45 Hrs + Tutorial: 15 Hrs + Practical: 0 Hrs

Total Marks: 100

Course Learning Outcomes (CLOs):

On completion of the course, the students will be able to:

- CLO1:** To make students conceptualize the social sector that has been a component of an economy and its development.
- CLO2:** To comprehend how the social sectors like health, education and other local institutions shape an economy.
- CLO3:** To make realised students about how globalisation has influenced the local level and its social sector, both positively and negatively.
- CLO4:** To understand how continuous economic changes in India since 1991 have boosted the social sector and social security initiatives

COURSE OUTLINE

UNIT I: INTRODUCTION TO ECONOMICS OF EDUCATION

Education as consumption and investment goods; Human capital—the concept, components of human capital; Historical developments in the human capital theory; Human capital and human development; Public and private education; Cost of education— private costs and social costs; Education, employment and income; Education, poverty and income distribution.

UNIT II: EDUCATIONAL PLANNING AND FINANCING

Approaches to educational planning; Economics of educational planning in developing countries with special reference to India; Educational planning and the problem of educated unemployment and brain drain; Role of financing in the development of education; Equity and efficiency effects of financing education in India.

UNIT III: INTRODUCTION TO ECONOMICS OF HEALTH

The concept of health and health care; life expectancy and mortality rates, morbidity— Health as consumption and investment goods; Role of health in economic development; Comparison of education and health; Health as human capital; Determinants of health— Poverty and malnutrition; Economic dimensions of health care— Demand and supply of health Care.

UNIT IV: FINANCING AND INSTITUTIONAL ISSUES IN HEALTH CARE

Resource mobilization and utilization of health care in India; Pricing and subsidies to health sector; Equity and efficiency effects of health care financing; Health care and resource constraints; Inequalities in health and health care in India; Institutional issues in health care delivery; Implications of GATT for health sector and financing.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum-discussion, Class room reading, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings
- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Fishbowl, Brainstorming
- Case-Based Learning, Field visits, Surveys
- Essays, Assignments, Term papers, End semester exam, Case studies, Group projects, Panel discussions, Seminar presentations

ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, Online Test, Class Assignment, Home Assignment, Dissertation, Book Review	Oral Test, Viva-Voce, Group Discussion, Seminar	Presentation, Seminars, Field Assignments, Poster Presentations
Summative Assessment (50 Marks)	Semester-end examinations conducted by the university will be considered the mode of summative assessment		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS

1. Becker, G.S. (1974). Human Capital. 2nd edition, NBER, New York.
2. Blaug, Mark (1972). Introduction to Economics of Education, London: Penguin.
3. Folland, S., A.C. Goodman, and M. Stano (2001). The Economics of Health and Health Care. New Jersey: Prentice Hall.
4. Klarman, H.E. (1995). The Economics of Health. New York: Columbia University Press.
5. Panchamukhi, P.R. (1980). Economics of Health: A Trend Report. ICSSR Survey, New Delhi: Allied Publisher.
6. Phelps, Charles E. (2010). Health Economics. 4th edition, Prentice Hall.
7. Tilak, J.E.G. (1989). Economics of Inequality in Education. New Delhi: Sage.
8. Walker, Melanie, and Elaine U. (eds.) (2007). Amartya Sen's Capability Approach and Social Justice in Education. Macmillan.
9. William, Jack (2000). Principles of Health Economics for Developing Countries. WBI Development Studies.
10. World Bank (1993). The World Development Report 1993: Investing in Health. Oxford University Press.

Note: Latest edition of text books and reference books may be used.

ECO-R-651**DISSERTATION****Semester: Fourth Semester****Course Level: 600****Total Marks: 200****L+T+P: 0+2+6=8 Credits****Lecture: 0 Hrs+ Tutorial: 30 Hrs+ Practical: 180 Hrs****Course Learning Outcomes (CLOs):**

After completing this course, the students will be able to:

CLO1: improve upon skills required for undertaking studies to evaluate various developmental policies

CLO2: identify the gaps in the research by carrying out a comprehensive review of existing literature

CLO3: formulate relevant research questions and study objectives for a selected research problem

CLO4: design and execute field and non-field-based studies to selected research problems

CLO5: demonstrate and use computer software programs to analyze relevant economic problems using large databases and appropriate econometric tools, and derive and interpret the results

CLO6: design policies for addressing the social and economic problems in the light of their findings

CLO7: prepare a research report covering the research questions, research design and methods, results, and conclusion, while adhering to the established conventions of academic writing, citation, and referencing

Teaching Learning Strategies

The Dissertation shall be a compulsory paper for all the students. The Dissertation will be evaluated by internal and external examiners and shall be based on the following Guidelines:

- The dissertation shall either be a record of original work or an ordered and critical exposition of existing of socio-economic problem.
- Each student will be assigned a mentor from the available faculties of the department before the beginning of the third semester. The academic credits of the student for dissertation paper shall be counted for the final semester only.
- The students will be required to complete his/her dissertation work before the completion of the End-Semester Examinations of final Semester.
- Three copies of the dissertation should be submitted at the time of summative assessment which must be duly certified by the supervisor.
- The students shall be required to submit Dissertation in the Format as approved by the University and according to guidelines issued by the University.
- Candidate shall not be permitted to submit a dissertation on which a degree/diploma/certificate has already been conferred on her/him or anyone else by the university or any other university/institution.
- The dissertation shall be examined by the external examiner on receipt of a copy of the dissertation. He/she will evaluate the Dissertations and conduct the Viva-Voce Examination.

ECO-V-652

CONTRIBUTION OF ECONOMISTS TO INDIAN KNOWLEDGE SYSTEM

Semester: Fourth Semester

Course Level: 600

Total Marks: 100

L+T+P: 2+1+1=4 Credits

Lecture: 30 Hrs+ Tutorial: 15 Hrs+ Practical: 30 Hrs

Course Learning Outcomes (CLOs):

On successful completion of the course, the students should be able to:

CLO1: Comprehend the ideas and thoughts of the thinkers in making modern India contribution of Indian Economist.

CLO2: Critically examine their contributions in understanding the present Indian Economy in context of Indian Economy.

CLO3: Debate and discuss the relevance of the ideas of the thinkers in contemporary economists.

COURSE OUTLINE

Unit I

1. History of Indian Economic Thoughts, New Indian Economic Models & Sectorial Contributions; Past vs Present; History of Indian Economic Thoughts: Context from Dharma Shastras, Shukraniti, Mahabharata, and Arthashastra. Contributions of Nobel laureates and famous Indian Economists to Economic Thoughts (Abhijit Banerjee, Amartya Kumar Sen, Suresh Tendulkar, Manmohan Singh, S.S. Ahulwalia, Prabhat Patnayak, C.R. Rangarajan etc.

2. Unit II

Kautiya's Economic thoughts in specific. India and Global GDP: Ancient India • Beyond Capitalism and Communism, Dharmic, Caste as Social Capital, Black Money, and Tax Heaven.

3. Unit III

Agriculture; Ancient India, Manufacturing; Ancient India, Education in India, Wealth in India, Governance, and Business in India, Indian Business Model.

4. Unit IV

Project Report: Indian Models of Economy, Business, and Management

TEACHING LEARNING STRATEGIES

- Lecture-cum-discussion, Class room reading, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings
- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Fishbowl, Brainstorming
- Case-Based Learning, Field visits, Surveys
- Essays, Assignments, Term papers, End semester exam, Case studies, Group projects, Panel discussions, Seminar presentations

ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, Online Test, Class Assignment, Home Assignment, Dissertation, Book Review	Oral Test, Viva-Voce, Discussion, Seminar	Presentation, Group Seminars, Field Assignments, Poster Presentations
Summative Assessment (50 Marks)	Semester-end examinations conducted by the university will be considered the mode of summative assessment		

- Note: Teachers can choose any mode of formative assessment as per nature of the CLO

SUGGESTED READINGS:

- Kanagasabapathi; “Indian Models of Economy, Business and Management”, Third Edition, Prentice Hall India Ltd., Delhi.
- Lotus and Stones; Garuda Prakashan (31 October 2020); Garuda Prakashan Pvt. Ltd.
- Dwivedi D.N., Essentials of Business Economics, Vikas Publications, Latest Edition.
- InidaUninc by Prof. R Vaidyanathan, Westland Ltd.Publication
- Economic Sutras by Prof. Satish Y. Deodhar, IIMA Books series
- Black Money Tax Heaven by R Vaidyanathan, Westland Ltd. Publication.
- Goswami Anandajit, Economic Modeling, Analysis, and Policy for Sustainability, IGI Global, Latest Edition.
- Ganguly Anirban, Redefining Governance, published by Prabhat Prakashan, Latest E

ECO-O-653
AGRICULTURAL ECONOMICS

Semester: Fourth Semester
L+T+P: 2+1+1=4 Credits

Course Level: 600 Total Marks: 100
Lecture: 30 Hrs+ Tutorial: 15 Hrs+ Practical: 30 Hrs

Course Learning Outcomes (CLOs):

After completion of the course must make the learners able to

CLO1: To describe agricultural development models, green revolution and agricultural development during various plans.

CLO2: Integrate the general economic understanding to the problems of agricultural sector

CLO3: Analyse data related to agricultural and rural development.

CLO4: Interact with various stakeholders involve in agricultural and rural development

CLO5: Critically examine the policies meant for agricultural reform and integrate the rural economy to agricultural sector in meaningful way

CLO6: Formulate suitable agricultural development strategies by creating suitable models

COURSE CONTENT:

Unit I: Introduction to Agricultural Economics

Scope and subject matter of Agricultural Economics, Nature and utility of Agricultural Economics, Role and Importance of agriculture in economy - source of livelihood, employment, industrial development and trade; Agriculture production processes, National resource base of Indian agriculture, Factors responsible for agricultural development in India, Land utilization pattern, Changes in agrarian structure in India, Capital formation in Indian agriculture; Agricultural wages in India; Characteristics of primary agricultural markets in India, Regulated markets and market intervention.

Measuring efficiency in agricultural production, yield-gap analysis; Understanding the Supply chain in agriculture, drivers and metrics, distribution networks and application to e-business; Demand forecasting in a supply chain, planning and managing inventories in a supply chain; designing and planning transportation in a supply chain; information technology in a supply chain.

Unit II: Agricultural Finance and Agricultural Risk

Importance of agricultural finance, Role of credit in agricultural development, Economic principles applied to financial management of the farm, Economic feasibility test of credit; Types of risk in

agriculture - climate risk, production risk; Risk management through agricultural insurance, Crop insurance - benefits and constraints, Insurance and credit linkage; Agriculture insurance-support services - scope for using satellite imagery, Delivery strategies.

Unit III: Agricultural Policy Framework in India and International Trade in Agriculture

Land reforms, National seed policy, Biodiversity Act, WTO and seed policy; Protection of plant varieties and Farmers' Right Act; Fertilizer policy, New pricing scheme, Fertilizer subsidy, National Water Policy, water and electricity subsidy; Agriculture Price Policy, Agriculture marketing, Agricultural Produce Marketing Committee Act, eNAM, Scheme for crop insurance in India, WTO and Indian agriculture. Globalisation and case for free trade and for protectionism in agriculture, Instruments of trade policy, GATT-provisions relating to Agri-trade, WTO agreement on agriculture - main provisions, market access, domestic support, export subsidies, special and differential treatment, sanitary and phytosanitary provisions, Doha impasse, Emergence of various groups or alliances and their participation in negotiations, Issues for further negotiations; World agricultural trade - changing structure and pattern, status of developing economies, multilateralism and regionalism, factors affecting international trade.

Unit IV: Field work

Interaction with various stakeholders involved in agriculture e.g., farmers, government officials, cooperative organisations, farmers produce organisations. Data collection and analyse their issues and challenges.

TEACHING LEARNING STRATEGIES

- Lecture-cum-discussion, Class room reading, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings
- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Fishbowl, Brainstorming
- Case-Based Learning, Field visits, Surveys
- Essays, Assignments, Term papers, End semester exam, Case studies, Group projects, Panel discussions, Seminar presentations

ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, Online Test, Class Assignment, Home Assignment, Dissertation, Book Review	Oral Test, Viva-Voce, Group Discussion, Seminar	Presentation, Seminars, Field Assignments, Poster Presentations
Summative Assessment (50 Marks)	Semester-end examinations conducted by the university will be considered the mode of summative assessment		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Acharya and Agarwal, 1992, *Agricultural Marketing in India*, Oxford & IBH Publishing Company.
- Bhalla, G. S. and Singh G., 2001, *Indian Agriculture: Four Decades of Development*, Sage Publications.
- Chadha, G.K.; S. Sen and H.R. Sharma, 2004, *Land Resources, State of the Indian Farmer*, Vol. 2, Academic Foundation, New Delhi.
- Dantwala, M. L. and Others, 1991, *Indian Agricultural Development since Independence: A Collection of Essays*, Oxford & IBH Publishing Co., New Delhi.
- Datta Samar K. and Satish Y. Deodhar (2001), *Implications of WTO Agreements for Indian Agriculture*, Oxford and IBH Pub. Co., New Delhi.
- Dhondyal, S.P. "Farm Management -An Economic Analyst", Friends Publications. Meerut.
- Doll, J.P. and O. Frank (1978), *Production Economics - Theory & Applications*, John Wiley and Sons.
- Gardner, B.L. and G.C. Rausser (2001), *Handbook of Agricultural Economics*, Vol. I., Elsevier.
- Heady, E.O. (1968), *Economics of Agricultural Production and Resource Use*, Prentice- Hall.
- Sankayan, P.L. (1983), *Introduction to Farm Management*, Tata McGraw Hill.
- Singh, Surjit and Vidya Sagar (2004), *Agricultural Credit in India, State of the Indian Framers*, Vol. 7, Academic Foundation, New Delhi.

ECO-O-654

ECONOMICS OF GROWTH AND DEVELOPMENT**Semester: Fourth Semester****Course Level: 600****Total Marks: 100****L+T+P: 3+1+0=4 Credits****Lecture: 45 Hrs + Tutorial: 15 Hrs + Practical: 0 Hrs****Course Learning Outcomes (CLOs):**

On completion of the course, the students will be able to:

CLO1: To familiarise students with the concepts of growth and development models and to emphasize the evolution of these models.

CLO2: To comprehend the how the development theories have been evolved and how they are applicable to the changing society.

CLO3: Differentiating the western model of growth and development models from the actual development and development concepts in the third world countries.

CLO4: To teach students how these development models are applicable to the present world, especially to the third world countries.

COURSE OUTLINE**UNIT I: CONCEPT OF GROWTH AND DEVELOPMENT**

Meaning of growth and development; Measuring development– Income measures, Basic Needs Approach, PQLI and HDI and Capabilities Approach; Sustainable development.

UNIT II: THEORIES OF DEVELOPMENT

Contributions of Adam Smith, Ricardo, Karl Marx and Schumpeter; Nelson's low level equilibrium trap; Myrdal theory of backwash effect; Nurkse-Roden's balanced growth theory; Hirschman-Singer's unbalanced growth theory; Theory of dualism— Lewis and Fei-Ranis, Hariss-Todaro model; Big push theory.

UNIT III: THEORIES OF GROWTH AND TECHNOLOGY

Harrod-Domer growth model, Harrod's theory and the dynamic instability of the capitalist system; Neo-classical growth model of Solow, Meade, Kaldor-Pasinetti; Technological progress in the neo-classical paradigm; Neutral technological progress— Harrod and Hicks; Disembodied and embodied technological progress.

UNIT IV: SECTORAL ASPECTS OF DEVELOPMENT

Causes, consequences and controversies of population growth and the quality of life; Education and Population— Investing in education and health, the human capital approach, women and education, educational systems and development; O-Ring theory; Cost and benefits of population growth; Malthusian population trap; Impact of migration on urbanisation and urban unemployment.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum-discussion, Class room reading, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings
- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Fishbowl, Brainstorming
- Case-Based Learning, Field visits, Surveys
- Essays, Assignments, Term papers, End semester exam, Case studies, Group projects, Panel discussions, Seminar presentations

ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, Online Test, Class Assignment, Home Assignment, Dissertation, Book Review	Oral Test, Viva-Voce, Group Discussion, Seminar	Presentation, Seminars, Field Assignments, Poster Presentations
Summative Assessment (50 Marks)	Semester-end examinations conducted by the university will be considered the mode of summative assessment		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Adelman, Irma (1961): Theories of Economics Growth and Development, Stanford University Press, Stanford.
- Higgins, B. (1959): Economic Development, W.W. Norton, New Delhi.
- Todaro, Michael P. Stephen C. Smith (1996): Economic Development, Pearson Education Pvt. Ltd., New Delhi.
- Hayami, Y. and Yoshihisa Godo (2009): Development Economics– from Poverty to the Wealth of Nations, Oxford University Press, New Delhi.
- Ray, Debraj (2003): Development Economics, Oxford University Press, New Delhi.
- Meier, M. Gerald and James E. Rauch (2000): Leading issues in Economic Development, Oxford University Press: New Delhi.
- Sen, Amartya (2001): Development as Freedom, Oxford University Press, New Delhi
- Dreze, Jean and Amartya Sen (2005): India– Development and participation, OUP, New Delhi
- Ghatak, Subrata (1986): An Introduction to Development Economics, Rutledge, UK.
- Kindleberger, C. P. (1977): Economic Development, McGraw Hill.

Note: Latest edition of text books and reference books may be used.

ECO-E-655
ENVIRONMENTAL ECONOMICS

Semester: Fourth Semester
L+T+P: 3+1+0 = 4 Credits

Course Level: 600
Lecture: 45 Hrs + Tutorial: 15 Hrs + Practical: 0 Hrs

Total Marks: 100

Course Learning Outcomes:

On completion of the course, the students will be able to:

CLO1: Enables the students in acquiring the basic skills and knowledge required in the natural resource management.

CLO2: Eliciting students gain understanding about rational solutions for solving burgeoning environmental problems.

CLO3: To create impression about use and non-use environmental valuation.

CLO4: To make student gain insights about environmental and development, sustainability

UNIT I: ECONOMICS OF NATURAL RESOURCE

Renewable resources and its optimal use; Exhaustible resources and its optimal use; Intertemporal Production and Consumption decision— Depletable resources; Measuring & mitigating natural resource scarcity; Resource extraction path for different types of market; Condition for optimal depletion of resources; Cost function for non-renewable resources.

UNIT II: WELFARE, SOCIAL SECTOR AND ENVIRONMENT

Review of welfare theory in context of environment; Detrimental externalities and non-convexities in the production set; Pigouvian solution to externality; Coase theorem; Public goods & the tragedy of common; Lindahl's solution; The optimal level of pollution; Market achievement of optimal pollution; Taxation and optimal pollution; Environmental standards, taxes and subsidies; Marketable pollution permits; Uncertainty and the choice of policy instruments; Environmental risk and irreversibility; Environmental protection and income distribution

UNIT III: ENVIRONMENTAL VALUATION

Environmental damages/benefits, Social cost benefit analysis; Use values, Option values and Non-use values; Valuation techniques; Production based, Travel cost method; Contingent valuation; Hedonic-pricing method

UNIT IV: ENVIRONMENTAL ACCOUNTING AND DEVELOPMENT

Integrated Environmental & Economic Accounting & Measurement of Environmentally Corrected GDP; Environmentally Adjusted NDP; Adjusting NI Measurement to Account for Environment (Non-renewable resources); ENDP with Exploration Activity related to Exhaustible resources; Environment development trade-offs; Sustainable development—Concepts and indicators; Environmental Kuznets curve

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum-discussion, Class room reading, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings
- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Fishbowl, Brainstorming
- Computer-based learning, Spreadsheets and Databases, Hands-on data analysis
- Essays, Assignments, Term papers, End semester exam, Case studies, Group projects, Panel discussions, Seminar presentations

ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, Online Test, Class Assignment, Home Assignment, Dissertation, Book Review	Oral Test, Viva-Voce, Group Discussion, Seminar	Presentation, Seminars, Field Assignments, Poster Presentations
Summative Assessment (50 Marks)	Semester-end examinations conducted by the university will be considered the mode of summative assessment		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Anderson, D. A. (2014), Environmental Economics & Natural Resource Management, Routledge, London.
- Baumol, W.J. & Oates, W.E. (1998), The Theory of Environmental Policy, Cambridge University Press, New York.
- Bhattacharya, R. N. (2001), Environmental Economics, Oxford University Press, New Delhi.
- Hanley, N., Shogren, J.F., White, B. (1997), Environmental Economics in Theory & Practice, MacMillan.
- Kolstad, C.D. (1999), Environmental Economics, Oxford University Press, New Delhi.
- Pearce, D.W., Turner, R.K. (1990), Economics of Natural Resources & the Environment, Prentice Hall Financial Times, England.
- Roger, Perman., Yue, Ma. , James, Mc Gilvray., & Michael, Common. (2003), Natural Resource & Environmental Economics, Pearson Education Limited.
- Ramanathan, R. (2001), Energy and Environmental Economics, Helsinki University of Technology, Finland.
- Shankar, U. (ed.) (2001), Environmental Economics, Oxford University Press, New Delhi.

ECO-E-656**TIME SERIES ANALYSIS****Semester: Fourth Semester****Course Level: 600****Total Marks: 100****L+T+P: 3+1+0=4 Credits****Lecture: 45 Hrs+ Tutorial: 15 Hrs+ Practical: 0 Hrs****Course Learning Outcomes (CLOs):**

On completion of the course, the students will be able to:

CLO1: distinguish problems in econometrics relating to cross-section and time series

CLO2: theoretically and empirically formulate problems that can be resolved using time series analysis

CLO3: equip the students to gainfully to use different time series techniques for understanding trends and also for forecasting purposes

CLO4: take decisions based on appropriate forecasts for policy formulation

CLO5: proficiency in use of statistical software packages in handling time series data in different practical situations

COURSE OUTLINE**UNIT I: EXPLORATORY ANALYSIS OF TIME SERIES**

Graphical display, classical decomposition method, estimation, elimination of trend and seasonal components; Stationary Time Series— weak and strong stationary, AR, MA, ARMA processes; Conditions for stationarity, invertibility and causality; Autocorrelation and partial autocorrelation functions (ACF, PACF); Identification based on ACF and PACF; Estimation, order selection and diagnostic checks; Akaike information criterion, Schwarz information criterion.

UNIT II: NONSTATIONARY PROCESSES

ARIMA; Determination of order of integration, tests of non-stationarity (unit root tests) — Dickey-Fuller (DF); augmented DF (ADF), Phillips-Perron tests; Transforming nonstationary time series, Co-integration— tests for co-integration

UNIT III: FORECASTING AND PREDICTION BASED ON AR, MA, ARMA AND ARIMA MODELS

Estimation of the ARIMA Model— diagnostic checks-forecasting; VAR Model— estimation of VAR— forecasting with VAR; VAR and Causality— VECM.

UNIT IV: PRACTICAL APPLICATION OF TIME SERIES DATA

Applications of different software packages and tools for handling different practical problems related to time series data.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum discussion, Class room reading, Narration, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings
- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Fishbowl, Brainstorming
- Computer-based learning, Spreadsheets and Databases, Hands-on data analysis
- Case-Based Learning, Field visits, Surveys
- Essays, Assignments, Term papers, Case studies, Group projects, Panel discussions, Seminar presentations

ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, Online Test, Objective Test, Class Assignment, Exercise Classes Home Assignment	Oral Test, Viva-Voce, Group Discussion, Seminar	Presentations, Seminars, Fields Assignments, Hands-on Data Analysis
Summative Assessment (50 Marks)	Summative assessment will be based on the semester-end examinations conducted by the university.		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Brillinger, D. (2001). *Time Series: Data Analysis and Theory*.
- Brockwell, P. J. and Davis, R. A. (2009). *Time Series: Theory and Methods*. Springer.
- Charemza, Wojciech W., and Derek F. Deadman(1997): *New Directions in Econometric Practice: General to Specific Modelling, Cointegration and Vector Autoregression*, 2d ed., Edward Elgar Publisher, New York.
- Chatfield, C. (2003). *The Analysis of Time Series: An Introduction*. Chapman and Hall/CRC Press.
- Fan, J., and Yao, Q. (2005). *Nonlinear Time Series: Nonparametric and Parametric Methods*. Springer.
- Gujarati, D. and S. Sangeetha (2007), *Basic Econometrics, 4th Edition*, McGraw Hill International.
- Hamilton, J.D. (2009). *Time Series Analysis*. Princeton University Press.
- Johnston J, DiNardo, J.E.(2007): *Econometric Methods*; Edition, 4, revised ; Publisher, McGraw-Hill
- Mills, T. C.(1990): *Time Series Techniques for Economists*, Cambridge University Press.
- William H. Greene(2003): *Econometric analysis*, Edition: 5th ed View all formats and editions ; Publisher: Prentice Hall, Upper Saddle River, N.J.

ECO-E-657
ECONOMICS OF INFORMAL SECTOR

Semester: Fourth Semester **Course Level: 600** **Total Marks: 100**
L+T+P: 3+1+0=4 Credits **Lecture: 45 Hrs+ Tutorial: 15 Hrs+ Practical: 0 Hrs**

COURSE LEARNING OUTCOMES:

On completion of the course, the students will be able to:

CLO1: describe the basic concepts and measures of informality

CLO2: comprehend and explain the diverse historical and theoretical perspectives on the existence and persistence of informal economy and the fundamental differences between them

CLO3: fathom what the perseverance of informality reveals about the growth experience of the economy, and society, at large

CLO4: demonstrate and utilize the theoretical concepts in explaining how high levels of informality shape processes of growth and development, particularly in developing countries

CLO5: critically examine and verify the economic and social implications of embeddedness of informality in the contemporary Indian society

CLO6: formulate research problems on the link between informality and various performance indicators on the basis of theoretical and conceptual understanding

COURSE OUTLINE

UNIT I: CONCEPTS/MEASURES

Informal Sector— Statistical Concepts and Definitions; Informal Employment Vs Informal Economy; Characteristics of Informal Sector; Regional Estimates of Informal Sector— Conceptual Differences; Composition and Segmentation; Types of Employment in the Informal Sector; Earnings and Benefits; The Urban Informal Sector— Size, Composition and Contribution; Issues in Measurement; Improving Statistics on Informal Employment.

UNIT II: HISTORICAL AND THEORETICAL PERSPECTIVES ON INFORMAL ECONOMY

The ILO and the Informal Sector; Dual Economy Approach— Lewis Theory, Todaro Model, Fei and Ranis Model; Neo-Marxian Approach; Structuralist Approach; Legalist Approach; Institutional Approach; Voluntarist Approach; Recent Rethinking: ILO, WIEGO and World Bank; Sectoral Dependencies and Interlinkages; Formal and Informal Sector Linkage— Forward and Backward; The Informal sector and the Income Distribution— The Inverted U Curve

UNIT III: INFORMAL SECTOR IN GLOBAL CONTEXT

Informality and Growth— Production, Employment and Environment; Informality and Poverty; Informal Sector and Development Policy Dilemma; Globalisation and Informal Sector; Women and the Informal Sector; Wages and Incomes; Social Protection and Informal Workers; Country Studies— Informality in Developing Countries; The Second Economy in Socialist Countries; The Underground Economy in Developed Countries.

UNIT IV: INFORMAL SECTOR IN INDIA

Size, Structure and Growth; Manufacturing Sector; The Policy Context— Small-scale Industry Reservation Policy; Industrial Licensing; Regulation and Informal Sector— Factories Act, Labour Laws and Other Regulations; Informalization of the Formal Sector; Subcontracting; Debates on Firm Growth; Missing Middle; Determinants of Firm Transition.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum discussion, Class room reading, Narration, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings
- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Brainstorming
- Case-Based Learning, Field visits, Surveys
- Essays, Assignments, Term papers, Case studies, Group projects, Panel discussions, Seminar presentations

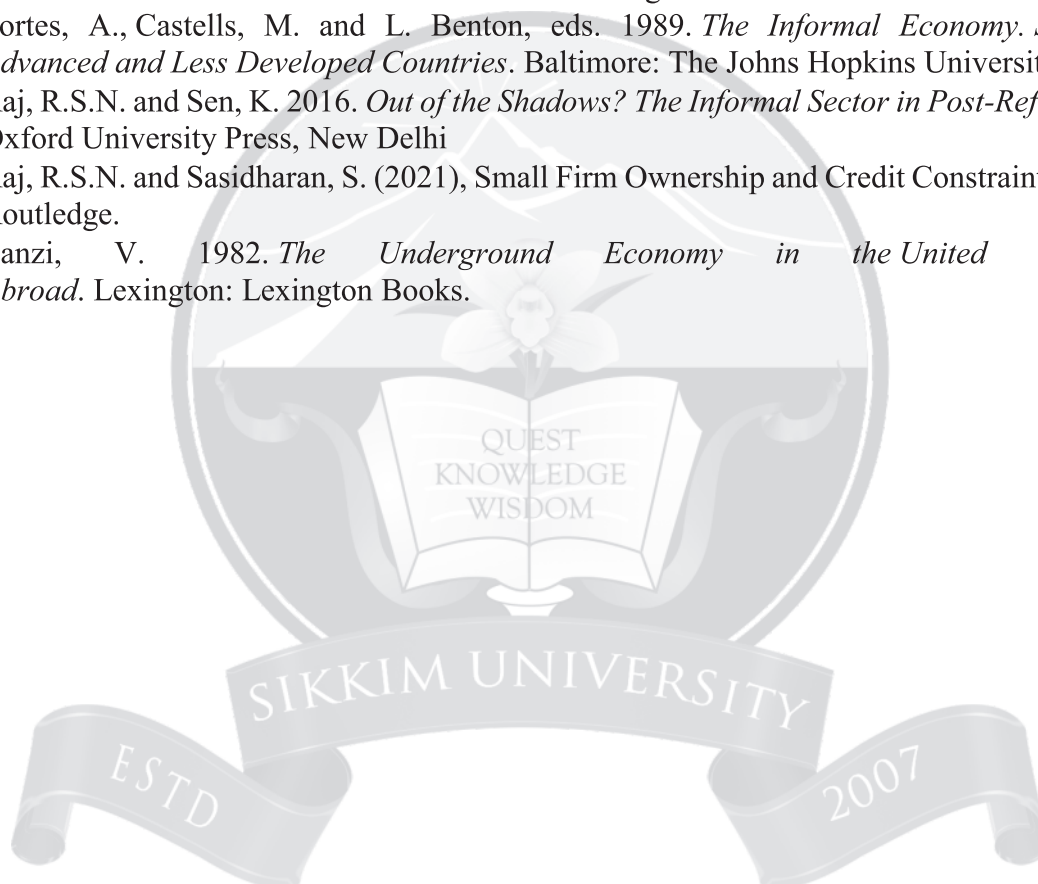
ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, Open Book Test, Self-Test, Online Test, Objective Test, Class Assignment, Peer assessment, Home Assignment	Oral Test, Viva-Voce, Brainstorming, Student becomes teacher, Group Discussion, Quiz	Presentations, Seminars, Debates
Summative Assessment (50 Marks)	Summative assessment will be based on the semester-end examinations conducted by the university.		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- B. Harriss-White and A. Sinha 2007. *Trade Liberalization and India's Informal Economy*, New Delhi: Oxford University Press.
- Basile, E. 2013. *Capitalist Development in India's Informal Economy*. Oxon: Routledge.
- Breman, Jan. 2013. *At Work in the Informal Economy of India: A Perspective from the Bottom Up*. New Delhi: Oxford University Press.
- De Soto, H. 1989. *The other path*. New York: Harper and Row.
- Little, I.M.D., D. Mazumdar and J.M. Page. 1987. *Small Manufacturing Enterprises: A Comparative Analysis of India and Other Economies*. New York: Oxford University Press.
- Marjit, S. and Kar, S. 2011. *The Outsiders: Economic Reforms and Informal Labour in a Developing Economy*, New Delhi: Oxford University Press.
- Mazumdar, D. and S. Sarkar. 2013. *Manufacturing Enterprises in Asia: Size Structure and Economic Growth*. London and New York: Routledge.
- Portes, A., Castells, M. and L. Benton, eds. 1989. *The Informal Economy. Studies in Advanced and Less Developed Countries*. Baltimore: The Johns Hopkins University Press.
- Raj, R.S.N. and Sen, K. 2016. *Out of the Shadows? The Informal Sector in Post-Reform India*, Oxford University Press, New Delhi
- Raj, R.S.N. and Sasidharan, S. (2021), *Small Firm Ownership and Credit Constraints in India*, Routledge.
- Tanzi, V. 1982. *The Underground Economy in the United States and Abroad*. Lexington: Lexington Books.



ECO-E-658**EFFICIENCY AND PRODUCTIVITY ANALYSIS****Semester: Fourth Semester****Course Level: 600****L+T+P: 3+1+0=4 Credits****Lecture: 45 Hrs+ Tutorial: 15 Hrs+ Practical: 0 Hrs****COURSE LEARNING OUTCOMES**

On completion of the course, the students will be able to:

CLO1: retrieve, recognize and recall relevant knowledge for long term memory. For example, the students will be able to define, identify list recognize and reproduce different types of optimization techniques, different types of programming methods, primal, dual, shadow price etc.

CLO2: categorize, clarify, classify, compare, contrast and conclude about the meanings from oral, theoretical, graphical, and algebraic expressions.

CLO3: integrate all the concepts and apply them in all kinds of decision-making problems be it agriculture, industry, banking, service sector, and educational institutions

CLO4: analyze the interrelationship among various concepts such as the relationship between technical, allocative and economic efficiency; between SFA and DEA models; amongst different DEA models; and the relative advantages and disadvantages of these methods.

CLO5: formulate innovative ideas in describing, comparing, expanding the existing concepts with new information such as (environment impact, impact of exogenous variables on the efficiency) and to implement them through new procedures or through modifying the existing approaches.

CLO6: evaluate each and every term in terms of its use, its predictive power, its relevance in applying various economic methods, and in making overall judgement, for example how the economies off scales affect the relative efficiency; the criteria of improving the inefficient DMUs

COURSE OUTLINE**UNIT I: PRODUCTION TECHNOLOGY AND PRODUCTION FUNCTION**

Parametric Form and Non-Parametric form of Technology; Formal Description of Technology; DEA Models of Technology; Cost Function for Cobb-Douglas Technology, Leontief Technology, CRS and VRS Technology; Distance Functions.

UNIT II: EFFICIENCY MEASUREMENT AND DEA

The Concept of Efficiency, Farrell and Pareto-Koopman Efficiency, Input and Output Oriented Efficiency DEA model: CCR Model and BCC model; Scale Efficiency and Decomposition of Technical Efficiency; Empirical Application.

UNIT III: ALLOCATION MODELS

Efficiency with Price and Cost in DEA; Decomposition Cost Efficiency; Empirical Applications of DEA Cost Efficiency

UNIT IV: TOTAL FACTOR PRODUCTIVITY

TFP using Index Number: Malmquist Productivity Index; the Decomposition of Malmquist Productivity Index; Empirical Applications.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum discussion, Class room reading, Narration, PowerPoint presentations, Clarification interaction, Web streaming, Video lessons, Library readings
- Class-room exercise of real data
- Computer-based numerical analysis
- Assignments, Term papers, and presentations

ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment (50 Marks)	Class Test, MCQ framing test, Online Test, Objective Test, Class Assignment, Exercise Classes Home Assignment, Critical review of papers	Oral Test, Viva-Voce, Group Discussion, Debates, Quiz, Seminar	Presentations, Seminars, Numerical data analysis PPT presentation
Summative Assessment (50 Marks)	Summative assessment will be based on the semester-end examinations conducted by the university.		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Cooper, W.W., Lawrence, M.S., Tone, K. (2005). *Introduction to Data Envelopment Analysis and its Uses with DEA Solver Software*, Springer.
- Charnes, A., Cooper, W. W., Lewin, Y. A., and Seiford, M.L. (Eds) (1994), *Data Envelopment Analysis: Theory, Methodology and Application*, Kluwer Academic Publishers. London.
- Coelli T., D.S. Rao, Prasada., G. E. Battese (1998). *An Introduction to Efficiency and Productivity Analysis*, Kluwer Academic Publishers, London.
- Ray, Subhas. C. (2004). *Data Envelopment Analysis: Theory and Techniques for Economics and Operation Research*, CUP, NY
- Thanassoulis, Emmanuel. (2003). *Introduction to the Theory and Application of Data Envelopment Analysis: A Foundation Text with Integrated Software*, Springer Science+ Media.
- Blackburn, V., Brennan, Shae; Ruggiero, John (2014). *Non-Parametric Estimation of Educational Production and Costs using Data Envelopment Analysis*, Springer.
- Hackman, Steven. T. (2008). *Production Economics: Integrating the Microeconomic and Engineering Perspectives*, Springer, USA.
- Charnes, A., Cooper, W.W., and Rhodes, E. (1978) Measuring the Efficiency of Decision-Making Units, *European Journal of Operational Research*, 2, pp.429-444.
- Banker, R. D., Charnes, A., and Cooper, W.W. (1984). Some Models for Estimating Technical and Scale Inefficiencies in Data Envelopment Analysis, *Management Science* 30:1078-1092.
- Varian, Hall. (1984). *Microeconomic Analysis*, NY, WW Norton



ECO-E-659**CONCEPT AND MEASURES OF POVERTY AND INEQUALITY****Semester: Fourth Semester****Course Level: 600 Total Marks: 100****L+T+P: 3+1+0=4 Credits****Lecture: 45 Hrs+ Tutorial: 15 Hrs+ Practical: 0 Hrs****COURSE LEARNING OUTCOMES:**

On completion of the course, the students will be able to learn

CLO1: retrieve, recognize and recall relevant knowledge for long term memory. For example, the students will be able to define, identify list recognize and reproduce concepts like poverty, inequality, absolute and relative poverty, different methods of poverty, inequality indices like Sen's index, estimation of poverty line, dimensions of poverty and inequality.

CLO2: categorize, clarify, classify, compare, contrast and conclude about the meanings from oral, theoretical, graphical, and algebraic expressions. The students will be able to compare the different approaches to estimate poverty and inequality, various policies adopted by Indian Government and its pros and cons.

CLO3: integrate all the concepts and apply them in the real analysis of the alleviation of poverty and thereby reducing inequality, and the budgetary policy of the government.

CLO4: analyze the interrelationship among various concepts such as the relationship between reduction of poverty and reduction in inequality, and impact of various policy programs of poverty and inequality reduction.

CLO5: formulate innovative ideas in describing, comparing, expanding the existing concepts with new information such as (new methods and approaches to estimate poverty and inequality) and will be able to able to implement them through new procedures or through modifying the existing approaches.

CLO6: evaluate each and every term in terms of its use, its predictive power, its relevance in applying various economic methods, and in making overall judgement, for example whether government should spend more on subsidizing various essential goods; whether the poverty estimation method is sufficient enough to reflect the realities etc.

COURSE OUTLINE

UNIT I: CONCEPTS OF POVERTY AND POVERTY LINE MEASUREMENT

Concepts of Poverty, Steps in Measuring Poverty, Choice of Indicator; Poverty line and Measuring Poverty Line, Poverty Measures and Checking for the Robustness of Poverty Indices.

UNIT II: MEASURES OF INEQUALITY AND DECOMPOSITION

Definition and Various Measures of Inequality; Comparison, and Decomposition of Income Inequality; Conceptual Issues, and Public Policy.

UNIT III: DIMENSIONS AND DETERMINANTS OF POVERTY

Understanding Determinants of Poverty; Multidimensional poverty, poverty reduction policies, vulnerability to poverty and analysis of poverty over time, poverty monitoring, and evaluation

UNIT IV: POVERTY AND INEQUALITY IN INDIA

Poverty and Inequality in India; The Estimates of CSO and NSSO; Growth of Poverty since 1990s and Aspects of Rising Inequalities; Tendulkar and Rangarajan Committee Report on Poverty; Policy Responses and Evaluation.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum discussion, Class room reading, Narration, PowerPoint presentations, Clarification interaction, Web streaming, Video lessons, Library readings
- Newspaper discussion on economic affairs
- Class-room based numerical problem hand-on -practice
- Journal papers critical review
- Assignments, Term papers, and presentations

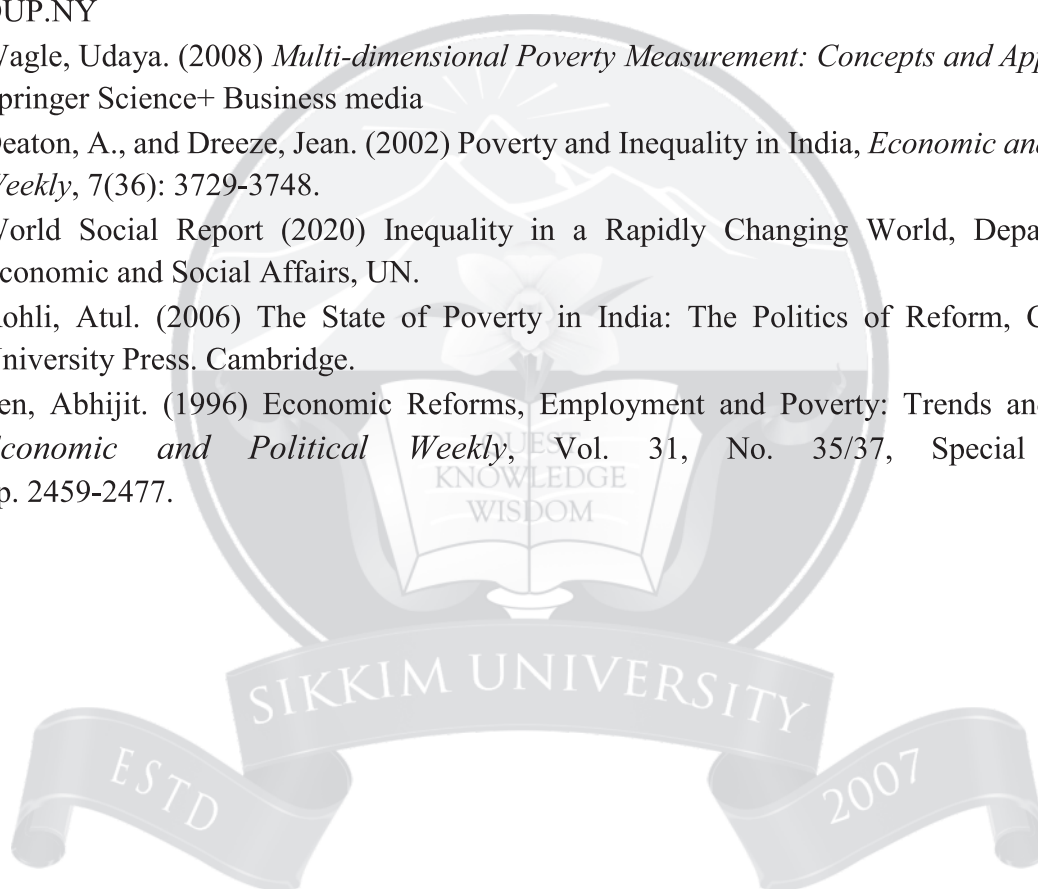
ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment Marks)	Class Test, MCQ framing test, Online Test, Objective Test, Class Assignment, Exercise Classes Home Assignment, Critical review of papers	Oral Test, Viva-Voce, Group Discussion, Debates, Newspaper discussion Quiz, Seminar	Presentations, Seminars, Numerical data analysis
Summative Assessment Marks)	Summative assessment will be based on the semester-end examinations conducted by the university.		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Houghton, J., and Sahidur, K. R (2009) *Handbook of Poverty and Inequality*, The World bank, Washington DC.
- Cornea, Giovanni. Andrea (Eds) (2004) *Inequality, Growth and Poverty in an Era of Liberalisation and Globalisation*, World Institute for Development Economics Research of the United Nations University (UNV/WIDER) Finland, OUP.
- Nallari, Ray and Griffin, Breda. (2011) *Understanding Growth and Poverty: Theory Policy and Empirics*, World Bank, Washington, DC.
- Danziger, Sheldon., H, Haveman., and Robert, H. (Eds) (2001) *Understanding Poverty*, Havard University Press.
- Jenkins, S.P., and Micklewright, J. (Eds) (2007) *Inequality and Poverty Reexamined*, OUP.NY
- Wagle, Udaya. (2008) *Multi-dimensional Poverty Measurement: Concepts and Applications*, Springer Science+ Business media
- Deaton, A., and Dreeze, Jean. (2002) Poverty and Inequality in India, *Economic and Political Weekly*, 7(36): 3729-3748.
- World Social Report (2020) *Inequality in a Rapidly Changing World*, Department of Economic and Social Affairs, UN.
- Kohli, Atul. (2006) *The State of Poverty in India: The Politics of Reform*, Cambridge University Press. Cambridge.
- Sen, Abhijit. (1996) Economic Reforms, Employment and Poverty: Trends and Options *Economic and Political Weekly*, Vol. 31, No. 35/37, Special Number pp. 2459-2477.



ECO-E-660
EMPIRICS IN TRADE AND ENVIRONMENT

Semester: Fourth Semester **Course Level: 600** **Total Marks: 100**
L+T+P: 1+2+1=4 Credits **Lecture: 15 Hrs+ Tutorial: 30Hrs+ Practical: 30 Hrs**

Course Learning Outcomes (CLOs):

On completion of the course, the students will be able to:

CLO1: Equip the students in extraction, arrangement and working with trade data.

CLO2: Train students in collection, cleaning and working with industrial statistics.

CLO3: Enabling students in collection, arrangement and working with environmental data.

CLO4: Helping to students to learn on collection, cleaning and working in climate statistics

COURSE OUTLINE

UNIT I: APPLICATIONS ON TRADE STATISTICS

Handling Trade Data (World Bank Open Data, IMF Data, WTO Statistics, UN Comtrade, OECD, DGCIS, APEDA) and Applications, Implementing GTAP using the GEMPACK.

UNIT II: APPLICATIONS ON INDUSTRIAL STATISTICS

Handling UNIDO Industrial Statistics, UNSD, ILO Stat, NSSO Database and Applications. Handling ASI, CII, MSME data and Applications.

UNIT III: APPLICATIONS ON ENVIRONMENTAL STATISTICS

Handling Environmental Data (SEEA, IEA, NOAA, IPCC, NASA, WHO Air Pollution, UN Environmental Statistics) and Applications.

UNIT IV: APPLICATIONS ON CLIMATE STATISTICS

Handling CPCB, MOEF, IMD, CDSP data and Applications.

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum discussion, Class room reading, Narration, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings
- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Fishbowl, Brainstorming
- Software-based learning, Spreadsheets and Databases, Hands-on sessions
- Case-Based Learning, Field visits, Surveys

- Essays, Assignments, Term papers, Case studies, Group tasks, Mini projects, Panel discussions, Seminar presentations

ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment Marks)	(50 Class Test, Open Book Test, Self-Test, Online Test, Objective Test, Class Assignment, Peer assessment, Home Assignment	Oral Test, Viva-Voce, Hot seat, Brainstorming, Student becomes teacher, Group Discussion, Debates, Quiz	Presentations, Seminars, Hands-on Data Analysis, Poster Presentations, Projects
Summative Assessment Marks)	(50 Summative assessment will be based on the semester-end examinations conducted by the university.		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Hertel, T.W. (1996), Global Trade Analysis: Modeling and Applications, Cambridge University Press, USA.
- Ianchovichina, E. and Walmsley, T.L. (2012), Dynamic Modeling and Applications for Global Economic Analysis, Cambridge University Press, USA.
- Zacks, S. and Ron S Kenett, R.S. (2021), Modern Industrial Statistics: With Applications in R, MINITAB and JMP, John Wiley & Sons, Ltd, New Jersey.
- Barnett, V. (2004), Environmental Statistics: Methods and Applications, John Wiley & Sons, Ltd, New Jersey.
- Pruscha, H. (2014), Statistical Analysis of Climate Series, Springer Berlin, Heidelberg.
- Storch, H.V. and Zwiers, F.W. (1999), Statistical Analysis in Climate Research, Cambridge University Press, USA.

Note: Latest edition of text books and reference books may be used.

ECO–E-661
COMPUTER APPLICATIONS IN ECONOMICS

Semester: Fourth Semester
L+T+P: 2+1+1=4 Credits

Course Level: 600
Lecture: 30 Hrs+ Tutorial: 15 Hrs+ Practical: 30 Hrs

Total Marks: 100

COURSE LEARNING OUTCOMES:

On completion of the course, the students will be able to:

CLO1: define and articulate the basics of computer hardware, software and computer applications

CLO2: demonstrate and perform data extraction, data cleaning and compiling large scale database for economic analysis

CLO3: manage and employ application software to execute various statistical and econometric methods for analysing relevant economic problems and derive and interpret the results

CLO4: critically judge and evaluate the appropriateness of empirical strategy used to investigate economic relationships

CLO5: develop an empirical strategy for addressing a relevant economic issue

COURSE OUTLINE

UNIT I: INTRODUCTION TO COMPUTERS AND PERIPHERALS

Meaning, Characteristics, types and evolution of computers; Basic components of computer; Networking and Resource Sharing; Introduction to Operating System; Fundamental of Database Management— Concepts of Data, Information, Record, File, Database, DBMS, Function of DBMS, Components of DBMS, DBMS Availability, MS Excel, MS Access, MS Word, MS PowerPoint.

UNIT II: DATA COMPILATION AND ANALYSIS

Data Processing; Techniques; Data Extraction, Importing Data, Data Entry, Editing, Cleaning and Coding (using MS Access, MS Excel, SPSS); Types of Data: Time Series, Cross Sectional, Panel and Pooled Data; Classification and Tabulation: groups, tables, cross tables, graphs and objects, Arithmetic Progression, Geometric Progression, Time and frequency series.

UNIT III: CROSS SECTION AND PANEL DATA TECHNIQUES AND METHODS USING SPSS/STATA/ ANY OTHER SOFTWARE

Descriptive Statistics; One Sample T Test; Independent Sample Test; Paired Sample T Test; One Way ANOVA; Correlation: Bivariate, Partial; Regression-Least Square, Binary and Logistic Regression; Factor Analysis, Principal Component, Panel Data Regression Models: Fixed and Random Effects Models

UNIT IV: SIMULTANEOUS EQUATION AND TIME SERIES MODELING USING STATA/EVIEWS

Method of Instrumental Variables, Two Stage Least Squares, Endogeneity and Causality, Self-Selection, Hurdle Models, Decomposition Methods, Matching Methods, Distributional Effects; Time Series Modeling: Unit Root Test, Cross Correlations and Correlograms, Granger Causality, Cointegration

SUGGESTED TEACHING LEARNING STRATEGIES

- Lecture-cum discussion, Class room reading, Narration, PowerPoint presentations, Clarification pauses and collaborative note-taking, Web streaming, Video lessons, Library readings
- Peer instruction, Active review sessions, Debates, Class, small-group and pair discussion, Fishbowl, Brainstorming
- Software-based learning, Spreadsheets and Databases, Hands-on sessions
- Case-Based Learning, Field visits, Surveys
- Essays, Assignments, Term papers, Case studies, Group tasks, Mini projects, Panel discussions, Seminar presentations

ASSESSMENT FRAMEWORK

Assessment	Written Modes	Oral Modes	Integrated Modes
Formative Assessment Marks)	Class Test, Open Book Test, Self-Test, Online Test, Objective Test, Class Assignment, Peer assessment, Home Assignment	Oral Test, Viva-Voce, Hot seat, Brainstorming, Student becomes teacher, Group Discussion, Debates, Quiz	Presentations, Seminars, Hands-on Data Analysis, Poster Presentations, Projects
Summative Assessment Marks)	Summative assessment will be based on the semester-end examinations conducted by the university.		

Note: Teachers can choose any mode of formative assessment as per nature of the CLO.

SUGGESTED READINGS:

- Baum, C.F. (2006), An Introduction to Modern Econometrics Using Stata, Stata Press
- Bradley, A. (1991), Peripherals for computer systems, Macmillan Education
- Davis, G. and Pecar, B. (2013), Business Statistics Using Excel, Oxford: Oxford University Press.
- Griffiths, W.E., Hill, R.C. and Lim, G.C. (2011), Using EViews for Principles of Econometrics, John Wiley & Sons
- Gujarati, D. (2014), Econometrics by Example, Palgrave Macmillan, Hampshire, UK
- Kerns (1993), Essentials of Microsoft windows, Word and Excel, Prentice Hall of India, New Delhi.
- Landau, S. and Everitt, B.S. (2004), A Handbook of Statistical Analyses using SPSS, Chapman and Hall/CRC, London.
- Stephe, M. (2006), Databases with Access: Learning Made Simple, Butterworth-Heinemann.
- Thareja, R. (2014), Fundamentals of Computers, New Delhi: Oxford University Press.
- Thomas, C. (2014), Exploratory Data Analysis in Business and Economics: An Introduction Using SPSS, Stata, and Excel, Springer International Publishing, Switzerland.
- Eviews Manual, Stata Manual, SPSS Manual

